SONY

3-080-369-**11**(1)

Digital Video Camera Recorder

Mini DV Digital Video Cassette

Operating Instructions

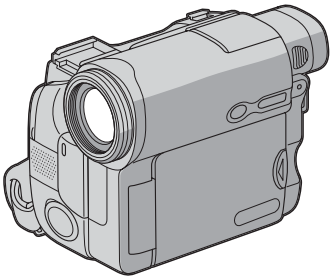
Before operating the unit, please read this manual thoroughly, and retain it for future reference.

Owner's Record

The model and serial numbers are located on the bottom. Record the serial number in the space provided below. Refer to these numbers whenever you call upon your Sony dealer regarding this product.

Model No. **DCR-TRV** _____ Model No. **AC-** _____

Serial No. _____ Serial No. _____



DCR-TRV33

Digital Handycam

InfoLITHIUM M SERIES

Cassette Memory

MEMORY STICK ™

DCR-TRV19/TRV22/TRV33

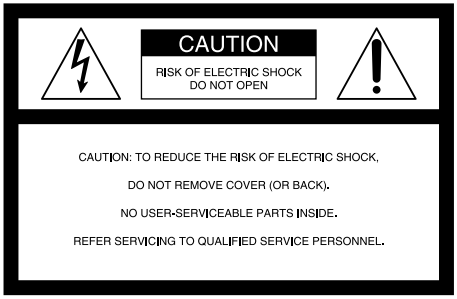
©2003 Sony Corporation

Welcome!

Congratulations on your purchase of this Sony Handycam. With your Handycam, you can capture life's precious moments with superior picture and sound quality. Your Handycam is loaded with advanced features, but at the same time it is very easy to use. You will soon be producing home video that you can enjoy for years to come.

WARNING

To prevent fire or shock hazard, do not expose the unit to rain or moisture.





This symbol is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.



This symbol is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

Notice

If static electricity or electromagnetism causes data transfer to discontinue midway (fail), restart the application or disconnect and connect the USB cable again.

For customers in the U.S.A. and CANADA

CAUTION

TO PREVENT ELECTRIC SHOCK, MATCH WIDE BLADE OF PLUG TO WIDE SLOT, FULLY INSERT.

RECYCLING LITHIUM-ION BATTERIES

Lithium-Ion batteries are recyclable.
You can help preserve our environment by returning your used rechargeable batteries to the collection and recycling location nearest you.



For more information regarding recycling of rechargeable batteries, call toll free 1-800-822-8837, or visit http://www.rbrc.org/

Caution: Do not handle damaged or leaking Lithium-Ion batteries.

"Memory Stick" (DCR-TRV22/TRV33 only)

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

This Class B digital apparatus complies with Canadian ICES-003.

For customers in the U.S.A.

If you have any questions about this product, you may call:
Sony Customer Information Center 1-800-222-SONY (7669)
The number below is for the FCC related matters only.

Regulatory Information

Declaration of Conformity

Trade Name:	SONY
Model No.:	DCR-TRV19
Responsible Party:	Sony Electronics Inc.
Address:	680 Kinderkamack Road, Oradell, NJ07649 U.S.A.
Telephone No.:	201-930-6972

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2)this device must accept any interference received, including interference that may cause undesired operation.

Declaration of Conformity

Trade Name:	SONY
Model No.:	DCR-TRV22
Responsible Party:	Sony Electronics Inc.
Address:	680 Kinderkamack Road, Oradell, NJ07649 U.S.A.
Telephone No.:	201-930-6972

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2)this device must accept any interference received, including interference that may cause undesired operation.

Declaration of Conformity

Trade Name:	SONY
Model No.:	DCR-TRV33
Responsible Party:	Sony Electronics Inc.
Address:	680 Kinderkamack Road, Oradell, NJ07649 U.S.A.
Telephone No.:	201-930-6972

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2)this device must accept any interference received, including interference that may cause undesired operation.

CAUTION

You are cautioned that any changes or modifications not expressly approved in this manual could void your authority to operate this equipment.

Note:

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

— Reorient or relocate the receiving antenna.
— Increase the separation between the equipment and receiver.
— Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
— Consult the dealer or an experienced radio/TV technician for help.

The supplied interface cable must be used with the equipment in order to comply with the limits for a digital device pursuant to Subpart B of Part 15 of FCC Rules.

Main Features



Other uses

Functions for adjusting exposure during recording

- Back light (p. 33)
- NightShot / Super NightShot* / Color Slow Shutter* (p. 34)
- PROGRAM AE (p. 62)
- Manual exposure (p. 64)
- Flexible Spot Meter (p. 65)

Functions for giving images more impact

- Digital zoom (p. 32)
 The default setting is **OFF**. (To zoom greater than 10×, select the digital zoom power in **D ZOOM** in the menu settings.)
- Fader (p. 55)
- Picture effect (p. 58, 72)
- Digital effect* (p. 59, 73)
- Title (p. 101)
- MEMORY MIX* (p. 120)

Functions for giving a natural appearance to your recordings

- PROGRAM AE (p. 62)
 – SPORTS
 – LANDSCAPE
- Manual focus (p. 66)
- Spot Focus (p. 67)

Functions for using after recording

- End search / Edit search / Rec Review (p. 37)
- Data code (p. 40)
- Tape PB ZOOM* (p. 74) / Memory PB ZOOM* (p. 140)
- Zero set memory (p. 75)
- Title search (p. 76)
- Digital program editing (p. 84, 130*)

* DCR-TRV22 / TRV33 only

Before you start reading this manual and operating your camcorder, check the model number by looking at the bottom of your camcorder. The DCR-TRV33 is the model used for illustration purposes. Otherwise, the model name is indicated in the illustrations. Any differences in operation are clearly indicated in the text, for example, “DCR-TRV33 only.”

Table of contents

Main Features 4

Quick Start Guide

Recording on tape 8
Recording on "Memory Stick" (DCR-TRV22 / TRV33 only) 10

Getting Started

Using this manual 12
Checking supplied accessories 15
Step 1 Preparing the power source 16
Installing the battery pack 16
Charging the battery pack 17
Checking status of battery pack – Battery Info 20
Connecting to a wall outlet 21
Step 2 Setting the date and time 22
Step 3 Using the touch panel 23

Recording – Basics

Recording a picture 25
Shooting backlit subjects – Back light function 33
Shooting in the dark – NightShot / Super NightShot / Color Slow Shutter 34
Checking recordings – End search / Edit search / Rec Review 37

Playback – Basics

Playing back tape 39
To display the screen indicators – Display function 40
Viewing a recording on TV 44

Advanced Recording Operations

Recording still images on "Memory Stick" during tape recording standby or tape recording (DCR-TRV22 / TRV33 only) 46
Recording a still image on a tape – Tape Photo recording (DCR-TRV19 only) 48
Self-timer recording 50
Adjusting the white balance manually 52
Using the wide mode 53
Using the fader function 55
Using special effects – Picture effect .. 58
Using special effects – Digital effect (DCR-TRV22 / TRV33 only) 59
Using PROGRAM AE 62
Adjusting the exposure manually 64
Using spot light-metering function – Flexible Spot Meter 65
Focusing manually 66
Using spot focus function – Spot Focus 67
Interval Recording 68
Frame by frame recording – Frame recording 69
Using the viewfinder 70

Advanced Playback Operations

Playing back tape with picture effect . 72
Playing back tape with digital effect (DCR-TRV22 / TRV33 only) 73
Enlarging images recorded on tape – Tape PB ZOOM (DCR-TRV22 / TRV33 only) 74
Quickly locating a scene – Zero set memory 75
Searching the boundaries of recorded tape by title – Title search 76
Searching a recording by date – Date search 77
Searching for a photo – Photo search / Photo scan (DCR-TRV19 only) 79

Editing

Dubbing tape 81
Dubbing only desired scenes – Digital program editing (on tape) 84
Recording video or TV programs 93
Inserting a scene from a VCR – Insert editing 95
Audio dubbing 97
Superimposing a title on a cassette with Cassette Memory 101
Making your own titles 103
Labeling a cassette on a cassette with Cassette Memory 104
Erasing all the data in Cassette Memory 105

"Memory Stick" Operations (DCR-TRV22/TRV33 only)

Using "Memory Stick" 106
Inserting / Ejecting the "Memory Stick" 109
Selecting image quality and size 110
Recording still images on "Memory Stick" – Memory Photo recording 114
Recording an image from tape as a still image 118
Superimposing a still image in "Memory Stick" on an image – MEMORY MIX 120
Interval Photo Recording 124
Recording moving pictures on "Memory Stick" – MPEG MOVIE recording 125
Self-timer recording 127
Recording a picture from tape as a moving picture 128
Recording edited pictures from tape as a moving picture – Digital program editing (on "Memory Stick") 130
Changing the recording folder 133
Viewing a still image – Memory Photo playback 135
Viewing a moving picture – MPEG MOVIE playback 137
Choosing a playback folder 139
Enlarging still images recorded on "Memory Stick" – Memory PB ZOOM 140
Playing back images continuously – Slide show 141
Preventing accidental erasure – Image protection 142
Deleting images – DELETE 143
Changing image size – Resize (DCR-TRV33 only) 146
Writing a print mark – Print mark ... 147

Viewing images with your computer

Viewing images with a computer – Introduction 148
Connecting your camcorder to a computer using the USB cable (For Windows users) 151
Viewing pictures recorded on tape on a computer – USB Streaming (For Windows users) 161
Viewing images recorded on "Memory Stick" on a computer (For Windows users) (DCR-TRV22 / TRV33 only) 167
Connecting your camcorder to a computer using the USB cable (For Macintosh users) (DCR-TRV22 / TRV33 only) 170
Viewing images recorded on "Memory Stick" on a computer (For Macintosh users) (DCR-TRV22 / TRV33 only) 172
Capturing images from an analog video unit on a computer – Signal convert function (DCR-TRV22 / TRV33 only) 173

Customizing Your Camcorder

Changing the menu settings 175

Troubleshooting

Types of trouble and how to correct trouble 186
Self-diagnosis display 194
Warning indicators 195
Warning messages 196

Additional Information

Usable cassettes 197
About the "InfoLITHIUM" battery pack 200
About i.LINK 202
Using your camcorder abroad 204
Maintenance information and precautions 205
Specifications 211

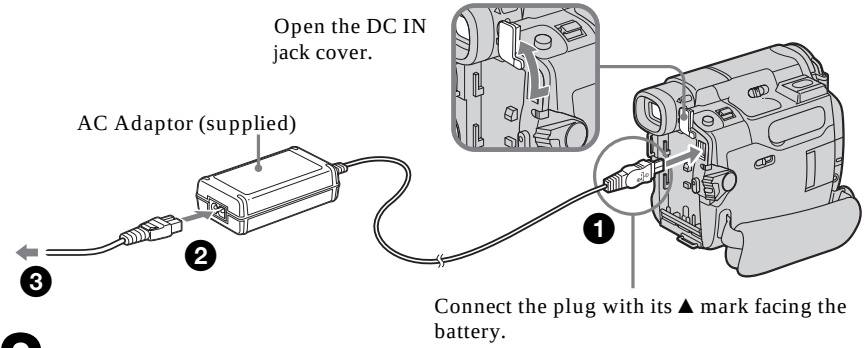
Quick Reference

Identifying parts and controls 213
Index 219

Quick Start Guide – Recording on tape

1 Connecting the power cord (p. 17)

Use the battery pack when using your camcorder outdoors (p. 16).



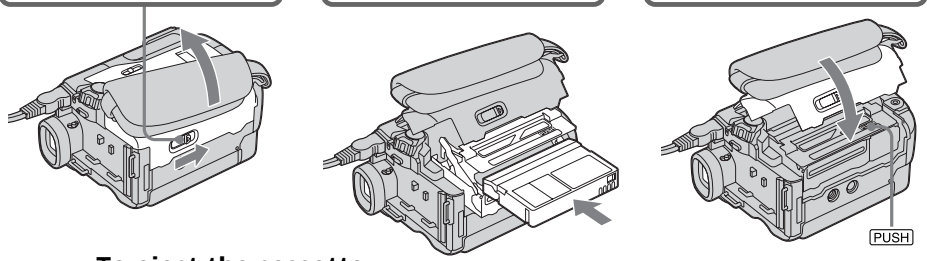
2 Inserting the cassette

1 Slide OPEN / ⏏EJECT in the direction of the arrow and open the lid.



2 Push the center of the cassette back to insert the cassette. Insert the cassette straight as far as possible into the cassette compartment with the window facing up.

3 Close the cassette compartment by pressing PUSH on the cassette compartment. After the cassette compartment goes down completely, close the lid until it clicks.



To eject the cassette

Follow the procedures above, and take out the cassette after the cassette compartment opens completely in step **2**.

Note

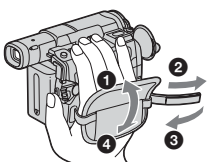
Do not press the cassette compartment down forcibly. Doing so may cause a malfunction.

How to hold your camcorder



Fastening the grip belt

Fasten the grip belt firmly.

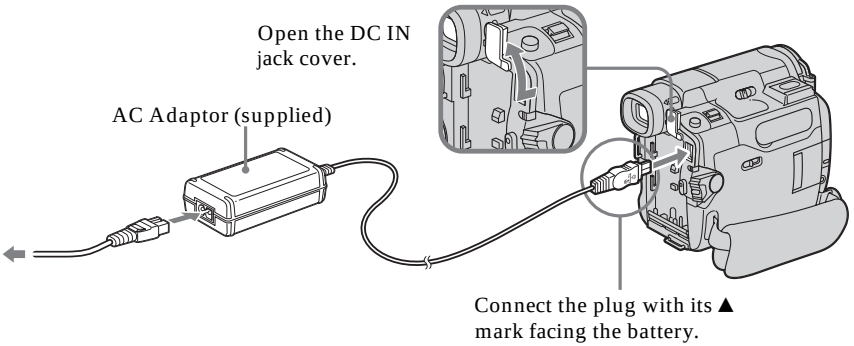




Quick Start Guide – Recording on “Memory Stick” (DCR-TRV22/TRV33 only)

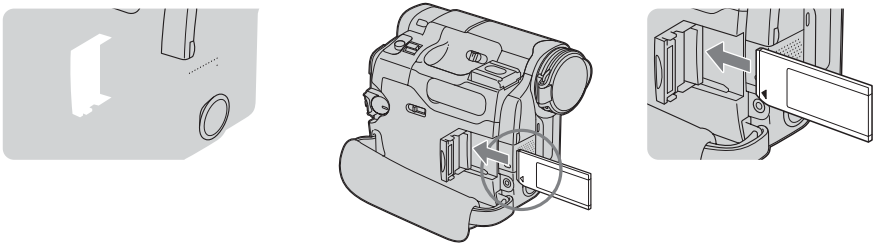
1 Connecting the power cord (p. 17)

Use the battery pack when using your camcorder outdoors (p. 16).



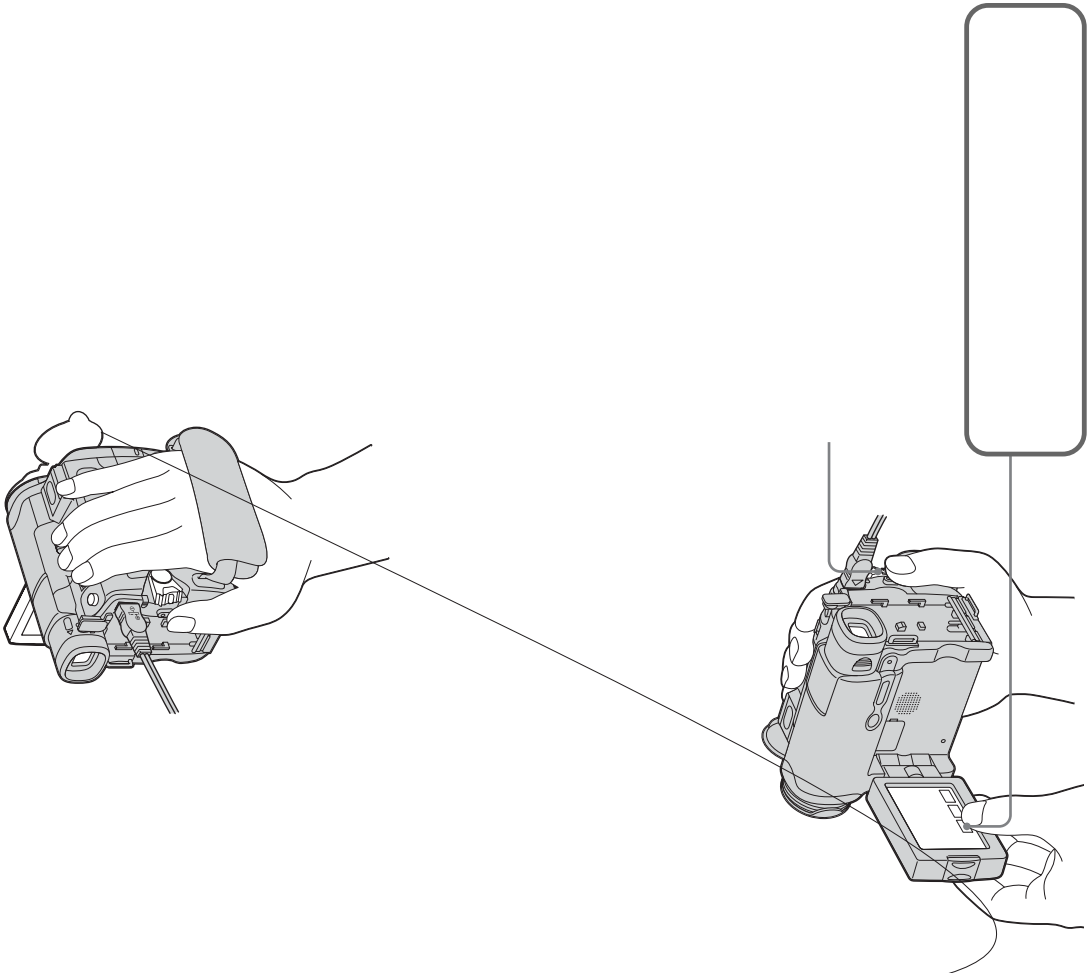
2 Inserting the “Memory Stick” (p. 109)

Open the lid of the “Memory Stick” slot. Insert the “Memory Stick” in the “Memory Stick” slot as far as it can go with the ◀ mark facing down as illustrated, then close the lid.



While the access lamp is lit or flashing

Do not shake or strike your camcorder because your camcorder is reading the data from the “Memory Stick” or recording the data on the “Memory Stick.” Do not turn the power off, eject the “Memory Stick” or remove the battery pack. Otherwise, image data breakdown may occur.

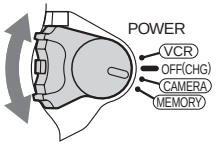


Using this manual

The instructions in this manual are for the 3 models listed in the table below. Before you start reading this manual and operating your camcorder, check the model number by looking at the bottom of your camcorder. The DCR-TRV33 is the model used for illustration purposes. Otherwise, the model name is indicated in the illustrations. Any differences in operation are clearly indicated in the text, for example, “DCR-TRV33 only.”

As you read through this manual, buttons and settings on your camcorder are shown in capital letters.

After “Advanced Recording Operations” section of this manual, position of the POWER switch is shown by the icons below.



VCR : Set the POWER switch to VCR.

CAMERA : Set the POWER switch to CAMERA.

MEMORY : Set the POWER switch to MEMORY. (DCR-TRV22 / TRV33 only)

When you carry out an operation, you can hear a beep to indicate that the operation is being carried out.

Types of differences

DCR-	TRV19	TRV22	TRV33
Viewfinder	B&W	Color	Color
MEMORY mark* (on the POWER switch)	—	●	●
AUDIO / VIDEO jack	●**	●	●
S VIDEO jack	●**	●	●

● Provided
— Not provided
* The models with MEMORY marked on the POWER switch is provided with memory functions. See page 106 for details.
** Output only

Note on Cassette Memory

Your camcorder is based on the DV format. You can use only mini DV cassettes with your camcorder. We recommend that you use a cassette with Cassette Memory .

Cassettes with Cassette Memory have the (Cassette Memory) mark.

Note on TV color systems

TV color systems differ depending on the country or area. To view your recordings on a TV, you need an NTSC system-based TV.

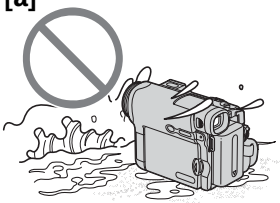
Copyright precautions

Television programs, films, video tapes, and other materials may be copyrighted. Unauthorized recording of such materials may be contrary to the copyright laws.

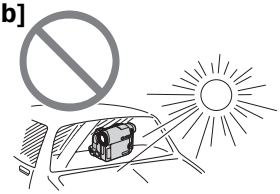
Note on connecting other equipment

When you connect your camcorder to other video equipment or a computer using the USB cable or i.LINK cable, observe the shape of the jack.
If you forcibly insert the plug, the jack may be damaged and they may result in a malfunction of your camcorder.

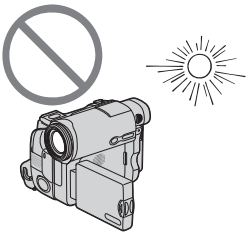
[a]



[b]



[c]



[d]

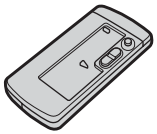


Checking supplied accessories

Make sure that the following accessories are supplied with your camcorder.

1

4



9

1 **AC-L15A/L15B AC Adaptor** (1), **Power cord** (1) (p. 17)

2 **NP-FM30 rechargeable battery pack** (1) (p. 16)

3 **A/V connecting cable** (1) (p. 44)

4 **Wireless Remote Commander** (1) (p. 75)

5 **Size AA (R6) battery for Remote Commander** (2) (p. 217)

6 **Shoulder strap** (1)

7 **Lens cap** (1) (p. 213)

8 **Shoe cover** (1) (p. 98)

9 **"Memory Stick"** (1) (DCR-TRV22/TRV33 only, p. 106)

10 **USB cable** (1) (p. 148)

11 **CD-ROM (SPVD-010 USB Driver)** (1) (p. 153, 171)

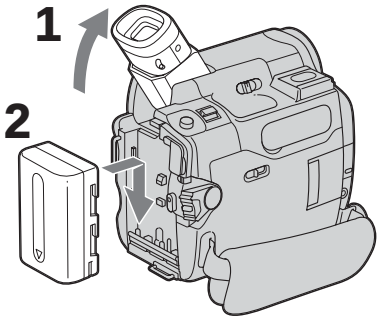
12 **Cleaning cloth** (1) (p. 206)

Contents of the recording cannot be compensated if recording or playback is not made due to a malfunction of the camcorder, storage media, etc.

Step 1 Preparing the power source

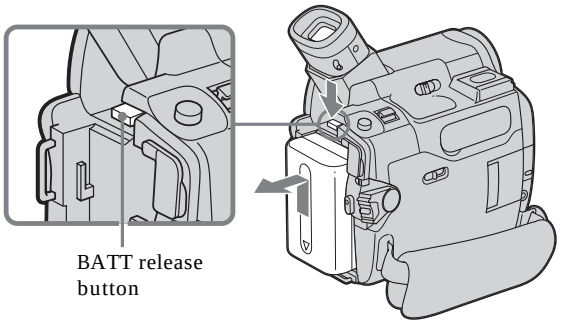
Installing the battery pack

(1) Lift up the viewfinder.
(2) Slide the battery pack down until it clicks.



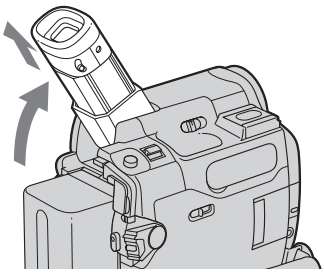
To remove the battery pack

(1) Lift up the viewfinder.
(2) Slide the battery pack out in the direction of the arrow while pressing BATT down.



If you use the viewfinder when a large capacity battery pack is installed

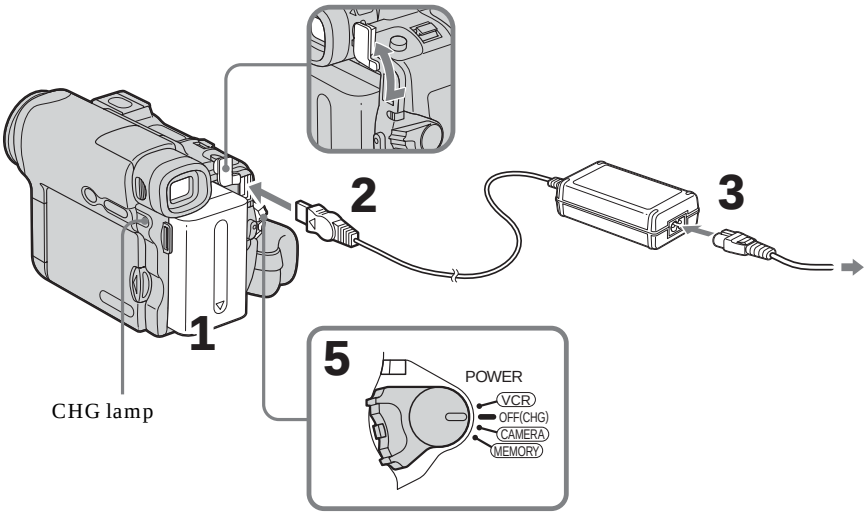
If you install the NP-FM70/QM71/QM71D/FM91/QM91/QM91D battery pack on your camcorder, extend the viewfinder, and lift up the viewfinder to a comfortable angle.



Charging the battery pack

Use the battery pack after charging it for your camcorder.
Your camcorder operates only with the **"InfoLITHIUM" battery pack (M series)**
See page 200 for details of "InfoLITHIUM" battery pack.

(1) Install the battery pack on your camcorder.
(2) Connect the AC Adaptor supplied with your camcorder to the DC IN jack with the ▲ mark on the DC plug facing the battery.
(3) Connect the power cord to the AC Adaptor.
(4) Connect the power cord to a wall outlet.
(5) Set the POWER switch to OFF (CHG).
The CHG lamp lights up when charging begins. After charging is completed, the CHG lamp goes out (full charge).



After charging the battery pack

Disconnect the AC Adaptor from the DC IN jack on your camcorder.

Note

Prevent metallic objects from coming into contact with the metal parts of the DC plug of the AC Adaptor. This may cause a short-circuit, damaging the AC Adaptor.

When you use the AC Adaptor

Place the AC Adaptor near a wall outlet. While using the AC Adaptor, if any trouble occurs with this unit, disconnect the plug from a wall outlet as soon as possible to cut off the power.

Note on the CHG lamp

The CHG lamp flashes in the following cases:
– The battery pack is not properly installed.
– Something is wrong with the battery pack.

Charging time

Battery pack	Full charge
NP-FM30 (supplied)	145
NP-FM50	150
NP-FM70	240
NP-QM71 / QM71D	260
NP-FM91 / QM91 / QM91D	360

Approximate minutes at 25°C (77°F) to charge an empty battery pack.
The charging time may increase if the battery's temperature is extremely high or low because of the ambient temperature.

Recording time

DCR-TRV19/TRV22

Battery pack	Recording with the viewfinder		Recording with the LCD screen	
	Continuous	Typical*	Continuous	Typical*
NP-FM30 (supplied)	125	65	90	45
NP-FM50	200	105	150	75
NP-FM70	415	215	310	160
NP-QM71/QM71D	485	255	365	190
NP-FM91/QM91/QM91D	725	380	550	290

DCR-TRV33

Battery pack	Recording with the viewfinder		Recording with the LCD screen	
	Continuous	Typical*	Continuous	Typical*
NP-FM30 (supplied)	90	50	70	35
NP-FM50	150	85	120	65
NP-FM70	310	175	250	140
NP-QM71/QM71D	365	205	290	165
NP-FM91/QM91/QM91D	550	310	445	250

Approximate minutes when you use a fully charged battery pack

* Approximate number of minutes when recording while you repeat recording start/stop, zooming and turning the power on/off. The actual battery life may be shorter.

Playing time

DCR-TRV19/TRV22

Battery pack	Playing time on the LCD panel	Playing time on with the LCD screen closed
NP-FM30 (supplied)	100	150
NP-FM50	165	240
NP-FM70	345	495
NP-QM71 / QM71D	400	580
NP-FM91 / QM91 / QM91D	605	865

DCR-TRV33

Battery pack	Playing time on the LCD panel	Playing time with the LCD screen closed
NP-FM30 (supplied)	100	135
NP-FM50	160	220
NP-FM70	335	450
NP-QM71 / QM71D	390	530
NP-FM91 / QM91 / QM91D	585	785

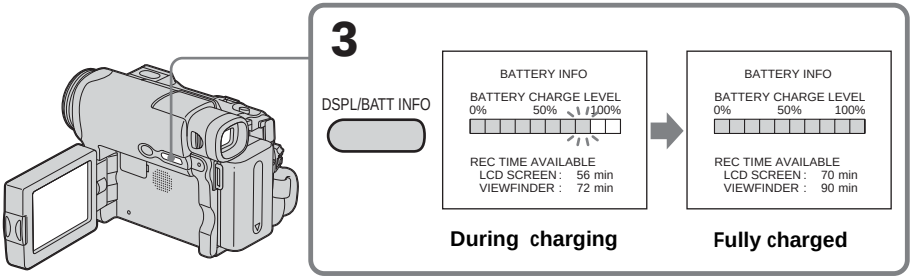
Approximate minutes when you use a fully charged battery pack

Note

Approximate recording time and continuous playing time at 25°C (77°F). The battery life will be shorter if you use your camcorder in a cold environment.

Checking status of battery pack – Battery Info

(1) Set the POWER switch to OFF (CHG).
(2) Press OPEN to open the LCD panel.
(3) Press DSPL / BATT INFO.
The battery charge level (the percentage of remaining battery time) and remaining battery time when using the LCD screen or viewfinder are displayed for about 7 seconds.
If you keep pressing DSPL / BATT INFO, the indicators will be displayed for about 20 seconds.



Notes

- The BATTERY INFO indicator may not be displayed in the following cases:
 – The battery pack is not installed.
 – Something is wrong with the battery pack.
 – The battery is exhausted.
- The BATTERY INFO indicator will not appear when you press DISPLAY on the Remote Commander when the POWER switch is set to OFF (CHG).

Battery Info

The number displayed as Battery Info is the approximate recording time.

While the remaining battery time is being calculated

"CALCULATING BATTERY INFO ..." is displayed.

If you press DSPL/BATT INFO with the LCD panel closed

The battery information appears on the viewfinder for about 7 seconds.

Connecting to a wall outlet

You can use your camcorder without worrying about the power shortage.
Connect the AC Adaptor in the same way as you would when charging the battery pack.

PRECAUTION

The set is not disconnected from the AC power source (house current) as long as it is connected to the wall outlet, even if the set itself has been turned off.

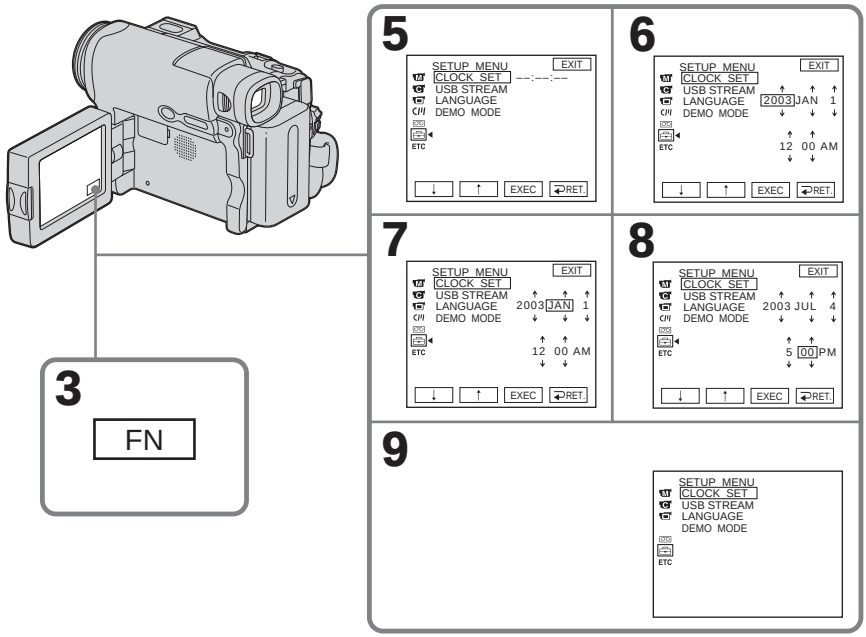
Notes

- The AC Adaptor can supply power from a wall outlet even if the battery pack is attached to your camcorder.
- The DC IN jack has "source priority." This means that the battery pack cannot supply any power if the power cord is connected to the DC IN jack, even when the power cord is not plugged into a wall outlet.

Step 2 Setting the date and time

Set the date and time when you use your camcorder for the first time. The “CLOCK SET” indicator will appear each time you set the POWER switch to CAMERA or MEMORY (DCR-TRV22/TRV33 only) unless you set the date and time settings.
If you do not set the date and time, “--- -- ----” and “--:--:--” are recorded on the tape or the “Memory Stick” (DCR-TRV22/TRV33 only) as the data code.
If you do not use your camcorder for **about 4 months**, the date and time settings may be released (bars may appear) because the built-in rechargeable battery installed in your camcorder will have been discharged (p. 207). In this case, charge the built-in rechargeable battery, then set the year, the month, the day, the hour and the minute.

(1) Set the POWER switch to CAMERA or MEMORY (DCR-TRV22/TRV33 only).
(2) Press OPEN to open the LCD panel.
(3) Press FN (Function) to display PAGE1 (p. 23).
(4) Press MENU to display the menu.
(5) Press ↓/↑ to select [toolbox], then press EXEC.
(6) Press ↓/↑ to select CLOCK SET, then press EXEC.
(7) Press ↓/↑ to select a desired year, then press EXEC.
(8) Set the month, day and hour with the same procedure as step 7.
(9) Press ↓/↑ to set the minute, then press EXEC by the time signal. The clock starts to move.



To return to FN (Function)

Press EXIT.

Note on the time indicator

The internal clock of your camcorder operates on a 12-hour cycle.
• 12:00 AM stands for midnight.
• 12:00 PM stands for noon.

Step 3 Using the touch panel

Your camcorder has operation buttons on the LCD screen.
Touch the LCD screen directly with your finger to operate each function.

(1) Set the POWER switch to CAMERA to record, VCR to play back, or MEMORY to use the “Memory Stick” (DCR-TRV22/TRV33 only).
(2) Press OPEN to open the LCD panel.
(3) Press FN. Operation buttons on PAGE1 are displayed on the LCD screen.
(4) Press PAGE2/PAGE3 to display PAGE2/PAGE3. Operation buttons on PAGE2/PAGE3 are displayed on the LCD screen.
(5) Press a desired operation item. See relevant pages of this manual for each function.



To return to FN
Press EXIT.

To execute settings
Press ↵ OK. The display returns to PAGE1/PAGE2/PAGE3.

To cancel settings
Press ↵ OFF. The display returns to PAGE1/PAGE2/PAGE3.

To make screen indicators disappear
Press DSPL/BATT INFO.

Operation buttons on each display

When the POWER switch is set to CAMERA

PAGE1	SPOT FOCUS, MENU, FOCUS, FADER, END SCH, SPOT METER, EXPOSURE
PAGE2	DIG EFFT*, SELFTIMER, LCD BRT, SUPER NS*, VOL, COLOR SLW S*, MEM MIX*

* DCR-TRV22/TRV33 only

When the POWER switch is set to VCR

PAGE1	MENU, LCD BRT, VOL, END SCH
PAGE2	DATA CODE, DIG EFFT*, PB ZOOM*
PAGE3	V SPD PLAY, A DUB CTRL, REC CTRL

* DCR-TRV22/TRV33 only

When the POWER switch is set to MEMORY (DCR-TRV22/TRV33 only)

During memory camera

PAGE1	SPOT FOCUS, MENU, FOCUS, PLAY, PB FOLDR, SPOT METER, EXPOSURE
PAGE2	SELFTIMER, PLAY, MEM MIX
PAGE3	LCD BRT, PLAY, VOL

During memory playback

PAGE1	MENU, CAM, PB FOLDR, DEL
PAGE2	PB ZOOM, CAM, RESIZE*, DATA CODE
PAGE3	LCD BRT, CAM, VOL

* DCR-TRV33 only

Notes

- When using the touch panel, press operation buttons lightly with your finger supporting the LCD panel from the back side of it.
- Do not press the LCD screen with sharp objects such as a pen.
- Do not press the LCD screen too hard.
- Do not touch the LCD screen with wet hands.
- If FN is not on the LCD screen, touch the LCD screen lightly to make it appear. You can control the display with DSPL/BATT INFO on your camcorder.

When executing each item

The green bar appears above the item.

If the items are not available

The color of the items changes to gray.

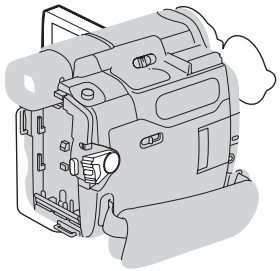
When using the viewfinder

You can also operate with the touch panel (p. 70).

Recording a picture

Perform Step 1 (p. 16) and Step 2 (p. 22) in advance.

(1) Open the lens cap.
(2) Prepare the power source (p. 16) and insert the cassette (p. 8).
(3) Set the POWER switch to CAMERA while pressing the small green button. This sets your camcorder to standby.
(4) Press OPEN to open the LCD panel. The picture appears on the screen.
(5) Press START / STOP. Your camcorder starts recording. The REC indicator appears. The camera recording lamp located on the front of your camcorder lights up. To stop recording, press START / STOP again.



Notes

• Position the lens cap so as not to cover the microphone and the infrared emitter.
• Avoid touching the microphone when you are recording.

Note on recording

Your camcorder records and plays back in the SP (standard play) mode and in the LP (long play) mode. Select SP or LP in in the menu settings (p. 182). In the LP mode, you can record **1.5 times** as long as in the SP mode.
When you record the tape in the LP mode on your camcorder, we recommend playing back the tape on your camcorder.

To enable smooth transition

Transition between the last scene you recorded and the next scene is smooth as long as you do not eject the cassette even if you turn off your camcorder.
However, check the following:
– Do not mix recordings in the SP and LP modes on one tape.
– When you change the battery pack, set the POWER switch to OFF (CHG).

If you leave your camcorder during standby for 5 minutes while the cassette is inserted

Your camcorder automatically turns off. This is to save battery power and to prevent battery pack and tape wear. To return to standby, set the POWER switch to OFF (CHG) and then back to CAMERA. However, your camcorder does not turn off automatically while the cassette is not inserted.

When you record in the SP and LP modes on one tape or you record in the LP mode

• The transition between scenes may not be smooth.
• The playback picture may be distorted or the time code may not be written properly between scenes.

Note on the LOCK switch (DCR-TRV22/TRV33 only)

When you slide the LOCK switch to the right, the POWER switch can no longer be set to MEMORY accidentally. The LOCK switch is set to the left as the default setting.

Self-timer recording

You can record images on the tape with the self-timer. See page 50 for details.

Indicators displayed during recording

Indicators are not recorded on the tape.

Remaining battery time indicator during recording

The remaining battery time indicator roughly indicates the continuous recording time. The indicator may not be correct, depending on the conditions in which you are recording. When you close the LCD panel and open it again, it takes about one minute for the correct remaining battery time in minutes to be displayed.

Time code

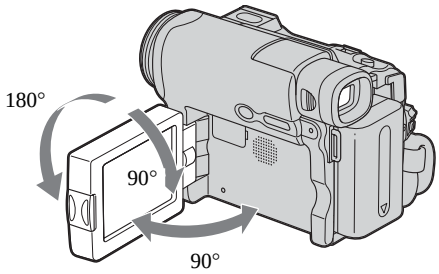
The time code indicates the recording or playback time, “0:00:00” (hours : minutes : seconds) in CAMERA and “0:00:00:00” (hours : minutes : seconds : frames) in VCR. You cannot rewrite only the time code later.

Recording data

After recording

(1) Close the lens cap.
(2) Set the POWER switch to OFF (CHG).
(3) Close the LCD panel.
(4) Eject the cassette.
(5) Remove the power source.

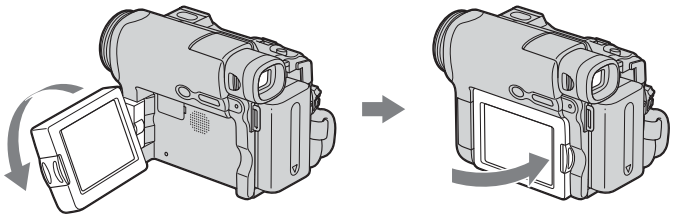
Adjusting the LCD screen



When you adjust the LCD panel, make sure that the LCD panel is opened up to 90 degrees.

When monitoring on the LCD screen

You can turn the LCD panel over and move it back to your camcorder body with the LCD screen facing out.



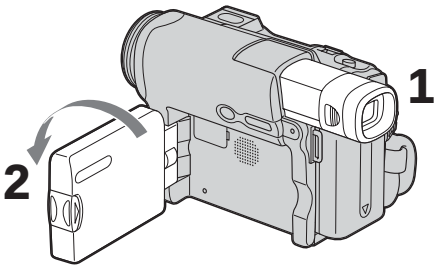
Notes

- When using the LCD screen except in the mirror mode, the viewfinder automatically turns off.
- If you turn the LCD panel over and move it back to your camcorder body when recording or recording standby, LCD B.L. (panel brightness) is fixed to “BRT NORMAL.”

Shooting with the mirror mode

This feature allows the camera subject to view him- or herself on the LCD screen.
The subject uses this feature to check his or her own image on the LCD screen while you look at the subject in the viewfinder.

(1) Extend the viewfinder.
(2) Rotate the LCD panel 180 degrees.

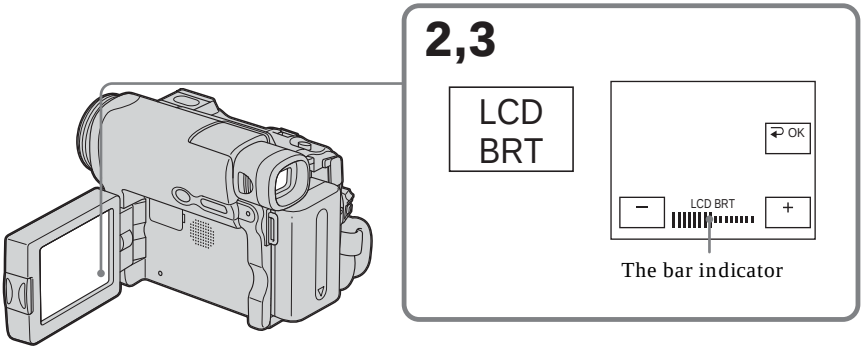


Picture in the mirror mode

The picture on the LCD screen is a mirror-image. However, the picture will be normal when recorded.

Adjusting the brightness of the LCD screen

(1) When the POWER switch is set to CAMERA, press FN and select PAGE2.
When the POWER switch is set to VCR, press FN to display PAGE1.
When the POWER switch is set to MEMORY (DCR-TRV22 / TRV33 only), press FN and select PAGE3.
(2) Press LCD BRT. The screen to adjust the brightness of the LCD screen appears.
(3) Adjust the brightness of the LCD screen using – (to dim) / + (to brighten).
(4) Press ↩ OK to return to PAGE1 / PAGE2 / PAGE3 in Step 1.



To return to FN

Press EXIT.

LCD screen backlight

You can change the brightness of the backlight when using the battery pack. Select LCD B.L. in in the menu settings (p. 178).

Even if you adjust LCD BRT or LCD B.L.

The recorded picture will not be affected.

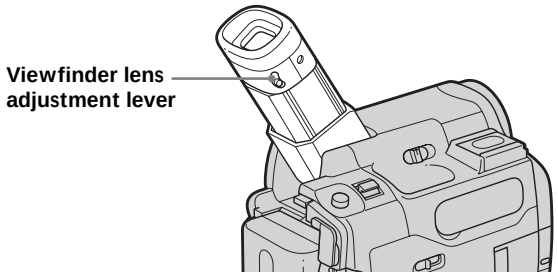
Shooting using the viewfinder is recommended when:

- You cannot see the picture clearly on the LCD screen.
- You want the battery pack to last longer.

Adjusting the viewfinder

If you record pictures with the LCD panel closed, check the picture with the viewfinder. Adjust the viewfinder lens to your eyesight so that the images in the viewfinder come into sharp focus.

Extend the viewfinder and move the viewfinder lens adjustment lever.



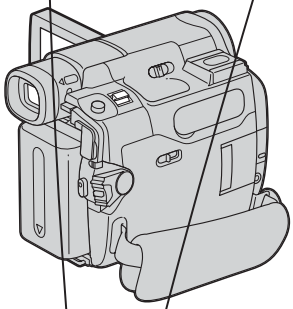
Viewfinder backlight
You can change the brightness of the backlight when using the battery pack. Select VF B.L. in in the menu settings (p. 178).

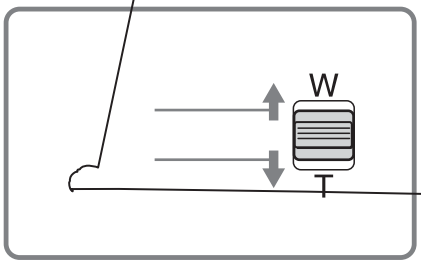
Even if you adjust VF B.L.
The recorded picture will not be affected.

The camera recording lamp (DCR-TRV19 only)
The camera recording lamp lights up in the viewfindrer during recording.

Using the zoom feature

Move the power zoom lever a little for a slower zoom. Move it further for a faster zoom. Using the zoom sparingly results in better-looking recordings.
W : Wide-angle (subject appears farther away)
T : Telephoto (subject appears closer)





To use zoom greater than 10×

Zoom greater than 10× is performed digitally. Digital zoom can be set to 20× or 120×. To activate digital zoom, select the digital zoom power in D ZOOM in in the menu settings (p. 177). The digital zoom is set to OFF as the default setting. Because the picture is processed digitally, the picture quality deteriorates.

When you shoot close to a subject

If you cannot get a sharp focus, move the power zoom lever to the "W" side until the focus is sharp. You can shoot a subject that is at least about 80 cm (about 2 5/8 feet) away from the lens surface in the telephoto position, or about 1 cm (about 1/2 inch) away in the wide-angle position.

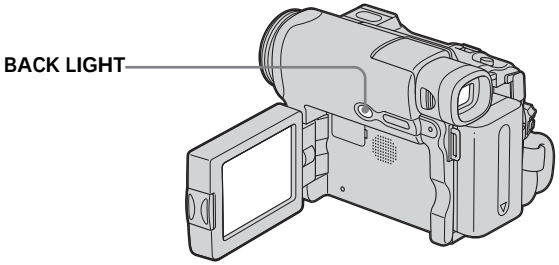
When the POWER switch is set to MEMORY (DCR-TRV22/TRV33 only)

You cannot use the digital zoom.

Shooting backlit subjects – Back light function

When you shoot a subject with the light source behind the subject or a subject with a light background, use the back light function.

(1) Set the POWER switch to CAMERA or MEMORY (DCR-TRV22/TRV33 only).
(2) Press BACK LIGHT.
The indicator appears on the screen.



To cancel the back light function

Press BACK LIGHT again.

When shooting backlit subjects

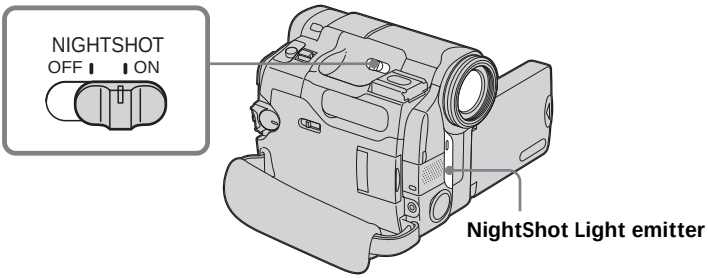
If you press MANUAL of EXPOSURE (p. 64) or SPOT METER (p. 65), the back light function will be canceled.

Shooting in the dark – NightShot/Super NightShot/Color Slow Shutter

Using NightShot

The NightShot enables you to shoot a subject in the night or in a dark place.
When recording with the NightShot, the picture may be recorded in incorrect or unnatural colors.

(1) Set the POWER switch to CAMERA or MEMORY (DCR-TRV22/TRV33 only).
(2) Slide NIGHTSHOT to ON.
The and "NIGHTSHOT" indicators flash on the screen.



To cancel NightShot
Slide NIGHTSHOT to OFF.

Using Super NightShot (DCR-TRV22/TRV33 only)

Super NightShot makes subjects more than 16 times brighter than those recorded in NightShot.

(1) Set the POWER switch to CAMERA.
(2) Slide NIGHTSHOT to ON.
The and "NIGHTSHOT" indicators flash on the screen.
(3) Press FN and select PAGE2.
(4) Press SUPER NS.
The S indicator lights up on the screen.
(5) Press EXIT to return to FN.

To cancel Super NightShot
Press SUPER NS again. To cancel NightShot, slide NIGHTSHOT to OFF.

Using NightShot Light

The picture will be clearer with the NightShot Light on. To enable the NightShot Light, set N.S. LIGHT in to ON in the menu settings. (The default setting is ON.)

Using Color Slow Shutter (DCR-TRV22/TRV33 only)

Color Slow Shutter enables you to record color images in a dim place.

(1) Set the POWER switch to CAMERA.
(2) Slide NIGHTSHOT to OFF.
(3) Press FN and select PAGE2.
(4) Press COLOR SLW S.
The [indicator] indicator lights up on the screen.
(5) Press EXIT to return to FN.

To cancel Color Slow Shutter

Press COLOR SLW S again to make the [indicator] indicator disappear.

Notes

- Do not use NightShot in bright places (e.g. the outdoors in the daytime). This may cause a malfunction.
- If focusing is difficult during recording with NightShot, focus manually.
- Do not cover the infrared rays emitter during recording with NightShot.

While using NightShot, you cannot use the following functions:

– White balance
– PROGRAM AE (The indicator flashes.)
– Manual exposure
– Flexible Spot Meter

While using Super NightShot or Color Slow Shutter (DCR-TRV22/TRV33 only)

The shutter speed is automatically adjusted depending on the brightness. At this time, the motion of the picture may slow down.

While using Super NightShot, you cannot use the following functions (DCR-TRV22/TRV33 only):

– White balance
– Fader
– Digital effect
– PROGRAM AE
– Manual exposure
– Flexible Spot Meter

When the POWER switch is set to MEMORY (DCR-TRV22/TRV33 only)
You cannot use the following functions:
– Super NightShot
– Color Slow Shutter

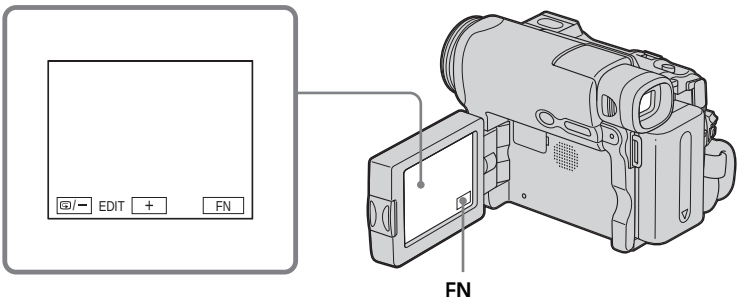
NightShot Light
NightShot Light rays are infrared and so are invisible. The maximum shooting distance using the NightShot Light is about 3 m (10 feet).

While using Color Slow Shutter, you cannot use the following functions (DCR-TRV22/TRV33 only):
– Fader
– Digital effect
– PROGRAM AE
– Manual exposure
– Flexible Spot Meter

In total darkness (DCR-TRV22/TRV33 only)
Color Slow Shutter may not work normally.

Checking recordings – End search/Edit search/Rec Review

You can use these buttons to check the recorded picture or shoot so that the transition between the last recorded scene and the next scene you record is smooth.



End search

You can go to the end of the recorded section after you record.

(1) Set the POWER switch to CAMERA.
(2) Press FN to display PAGE1.
(3) Press END SCH.
The last 5 seconds of the recorded section are played back and your camcorder returns to standby.

To return to FN

Press EXIT.

To cancel end search

Press END SCH again.

End search

When you use the cassette without Cassette Memory, end search does not work once you eject the cassette after you have recorded on the tape. If you use a cassette with Cassette Memory, end search works even once you eject the cassette.

If the tape has a blank portion between recorded portions

End search may not work correctly.

Edit search

You can search for the next recording start point. You cannot monitor the sound.

(1) Set the POWER switch to CAMERA.
(2) Press FN to display PAGE1.
(3) Press MENU to display the menu.
(4) Select EDITSEARCH in [C], then press EXEC (p. 177).
(5) Select ON, then press EXIT.
(6) Hold down ⊜ /– or +. The recorded portion is played back.
Release ⊜ /– or + to stop playback. If you press START / STOP, recording begins from the point you released ⊜ /– or +.
⊜ /–: To go backward
+: To go forward

Rec Review

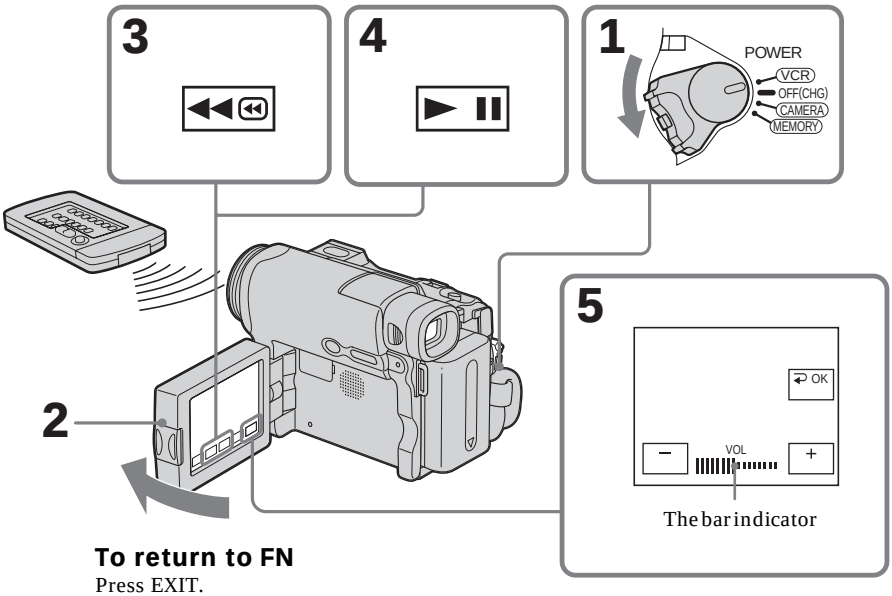
You can check the last recorded section.

(1) Set the POWER switch to CAMERA.
(2) Press FN to display PAGE1.
(3) Press MENU to display the menu.
(4) Select EDITSEARCH in [C], then press EXEC (p. 177).
(5) Select ON, then press EXIT.
(6) Press ⊜ /– momentarily.
The section you have stopped most recently will be played back for a few seconds, and then your camcorder will return to standby.

Playing back tape

You can monitor the recorded tape on the LCD screen. If you close the LCD panel, you can monitor the playback picture in the viewfinder. You can also control playback using the Remote Commander supplied with your camcorder.

(1) Set the POWER switch to VCR while pressing the small green button.
(2) Press OPEN to open the LCD panel.
(3) Press ◄◄ to rewind the tape.
(4) Press ►II to start playback.
(5) Adjust the volume following the steps below.
① Press FN to display PAGE1.
② Press VOL. The screen to adjust volume appears.
③ Press – (to turn down the volume) / + (to turn up the volume).
④ Press ↩ OK to return to PAGE1.



To return to FN
Press EXIT.

To cancel playback
Press ■.

To rewind the tape
Press ◄◄ during playback stop.

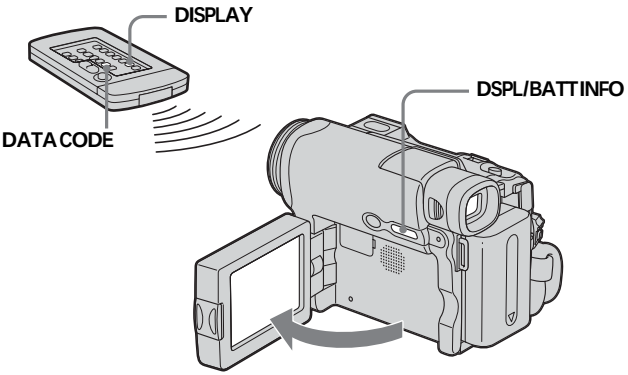
To fastforward the tape
Press ►► during playback stop.

To view a still image (playback pause)
Press ►II during playback. To resume playback, press ►II again. If the playback pause lasts more than 5 minutes, the camcorder automatically switches to the stop mode.

If you leave the power on for a long time
Your camcorder gets warm. This is not a malfunction.

To display the screen indicators – Display function

Press DSPL / BATT INFO on your camcorder or DISPLAY on the Remote Commander supplied with your camcorder.
The indicators disappear from the screen.
To make the indicators appear, press DSPL / BATT INFO or DISPLAY on the Remote Commander again.



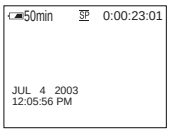
About date/time and various settings

Your camcorder automatically records not only images on the tape but also the recording data (date / time or various settings when recorded) **(Data code)**
Follow the steps below to display the data code using the touch panel or the Remote Commander.

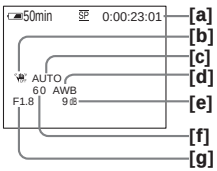
Using the touch panel

(1) Set the POWER switch to VCR, then play back the tape.
(2) During playback, press FN and select PAGE2.
(3) Press DATA CODE.
(4) Select CAM DATA or DATE DATA, then press ↵ OK.
(5) Press EXIT.

Date/time



Various settings



[a] Tape counter or time code
[b] SteadyShot off
[c] Exposure
[d] White balance
[e] Gain
[f] Shutter speed
[g] Aperture value

Using the Remote Commander

Press DATA CODE on the Remote Commander during playback.
The display changes as follows:
date/time → various settings (SteadyShot off, exposure, white balance, gain, shutter speed, aperture value) → (no indicator) → date/time →...

To prevent the various data from being displayed

Select DATE in DATA CODE in ETC in the menu setting (p. 184).
Each time you press DATA CODE on the Remote Commander, the display changes as follows:
data/time ↔ (no indicator)

Note

If you press DATA CODE on the Remote Commander when the POWER switch is set to OFF (CHG), no indicator appears.

Various settings

Various settings shows your camcorder's recording information at the time of recording. During tape recording standby, the various settings will not be displayed.

When you use data code, bars (-- -- --) appear if:

– A blank portion of the tape is being played back.
– The tape is unreadable due to tape damage or noise.
– The tape was recorded by a camcorder without the date and time set.

Data code

When you connect your camcorder to a TV, the data code also appears on the TV screen.

Various playback modes

To operate video control buttons, set the POWER switch to VCR.

Using the touch panel

(1) Press FN and select PAGE3.
(2) Press V SPD PLAY to display video control buttons.

To change the playback direction

Press [◄II<] during playback to reverse the playback direction.*

To locate a scene while monitoring the picture (picture search)

Keep pressing [◄◄] or [►►] during playback. To resume normal playback, release the button.

To monitor the high-speed picture while fastforwarding or rewinding the tape (skip scan)

Keep pressing [►►] while fastforwarding or [◄◄] while rewinding the tape. To resume fastforwarding or rewinding, release the button.

To view the picture at slow speed (slow playback)

Press [I►] during playback. *
For slow playback in the reverse direction, press [◄II<], then press [I►].*

To view the picture at double speed

Press [×2] during playback. *
For double speed playback in the reverse direction, press [◄II<], then press [×2].*

To view the picture frame-by-frame

Press [>II►] during playback pause.**
For frame-by-frame playback in the reverse direction, press [◄II<].**

To search the last scene recorded (END SEARCH)

Press END SCH on PAGE1 during stop. The last 5 seconds of the recorded section are played back then your camcorder stops.

* Press [►II] to pause playback. Press [►II] to resume normal playback.
**Press [►II] to resume normal playback.

Video control buttons

Marks on your camcorder are different from those on the Remote Commander supplied with your camcorder.

On your camcorder:

- ▶ II To play back or pause the tape
- ■ To stop the tape
- ◀◀ To rewind the tape
- ▶▶ To fastforward the tape
- I▶ To play back the tape slowly
- >II▶ To forward one frame at a time
- ◀II< To rewind one frame at a time
- ×2 To play back the tape at double speed

On the Remote Commander:

- ▶ To play back the tape
- II To pause the tape
- ■ To stop the tape
- ◀◀ To rewind the tape
- ▶▶ To fastforward the tape
- I▶ To play back the tape slowly
- >II▶ To forward one frame at a time
- ◀II< To rewind one frame at a time
- ×2 To play back the tape at double speed

In the various playback modes

- Sound is muted.
- The previous picture may remain as a mosaic image during playback.

When you play back the tape in reverse

Horizontal noise may appear at the center, or the top and bottom of the screen. This is not a malfunction.

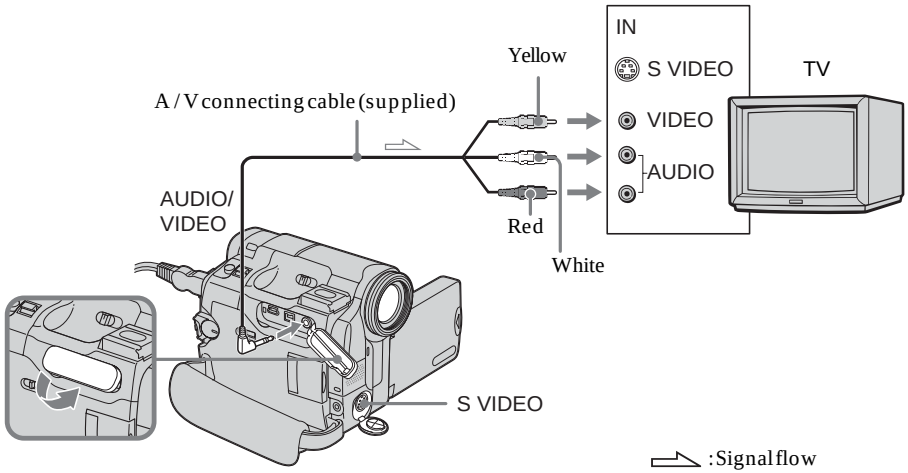
Slow playback

Slow playback can be performed smoothly on your camcorder. However, this function does not work for an output signal from the i.LINK DV Interface.

Viewing a recording on TV

Connect your camcorder to a TV with the A / V connecting cable supplied with your camcorder to watch the playback pictures on the TV screen. You can operate the playback control buttons in the same way as when you view playback pictures on the LCD screen.
When viewing the playback picture on the TV screen, we recommend that you power your camcorder from a wall outlet using the AC Adaptor. Refer to the operating instructions of your TV.

Open the jack cover. Connect your camcorder to the TV with the A / V connecting cable. Then set the TV / VCR selector on the TV to VCR to be able to view images from your camcorder.



If your TV is already connected to the VCR

Connect your camcorder to the LINE IN input on the VCR with the A / V connecting cable supplied with your camcorder. Set the input selector on the VCR to LINE.

If your TV or VCR is a monaural type

Connect the yellow plug of the A / V connecting cable to the video input jack and the white or the red plug to the audio input jack on the VCR or the TV.
If you connect the white plug, the sound is L (left) signal. If you connect the red plug, the sound is R (right) signal.

If the equipment to be connected has an S video jack

- Pictures can be reproduced more faithfully by using an S video cable (optional). With this connection, you do not need to connect the yellow (video) plug of the A / V connecting cable. However, you need to connect the red and white (audio) plugs. Connect the S video cable (optional) to the S video jacks on both your camcorder and the TV or the VCR.
 This connection produces higher quality DV format pictures.
- There is no sound output when connecting only with an S video cable (optional).

To display the screen indicators on TV

Set DISPLAY in ETC

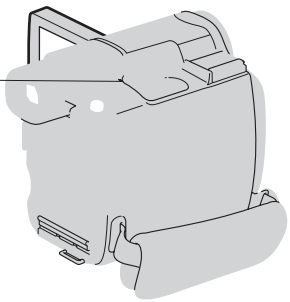
Insert a “Memory Stick” before the following operation.

During tape recording standby

The POWER switch should be set to (CAMERA).

(1) Keep pressing PHOTO lightly until a still image appears. The CAPTURE indicator appears. Recording does not start yet. To change the still image, release PHOTO, select a still image again, and then press and hold PHOTO lightly.

(2) Press PHOTO deeply.
Recording is complete when the bar scroll indicator at the upper right on the screen disappears.
The image displayed on the screen when you pressed PHOTO deeply will be recorded on the “Memory Stick.”



During tape recording

The POWER switch should be set to (CAMERA).

Press PHOTO deeply.
The image displayed on the screen when you pressed PHOTO deeply will be recorded on the “Memory Stick.”
Recording on the “Memory Stick” is complete when the bar scroll indicator disappears.

Note

You cannot record still images in the “Memory Stick” during the following operations (The [⊙⃠] indicator flashes):
– End search
– Wide mode
– During BOUNCE is on
– MEMORY MIX

“Memory Stick”

See page 106 for details.

Still images

- The image size will be 640 × 480.
- If the POWER switch is set to CAMERA, image quality cannot be changed. Images will be recorded with image quality as set when the POWER switch is set to MEMORY.
- When recording with higher image quality, use of memory photo recording is recommended.

During and after recording still images on the “Memory Stick”

Your camcorder continues recording on the tape.

When you press PHOTO on the Remote Commander

Your camcorder immediately records the image that is on the screen when you press the button.

To record still images on the “Memory Stick” during tape recording

You cannot check an image on the screen by pressing PHOTO lightly. The image when you press PHOTO deeply will be recorded on the “Memory Stick.”

Title

You cannot record the titles.

Self-timer recording

During recording standby, you can record still images on the “Memory Stick” with the self-timer. See page 50 for details.

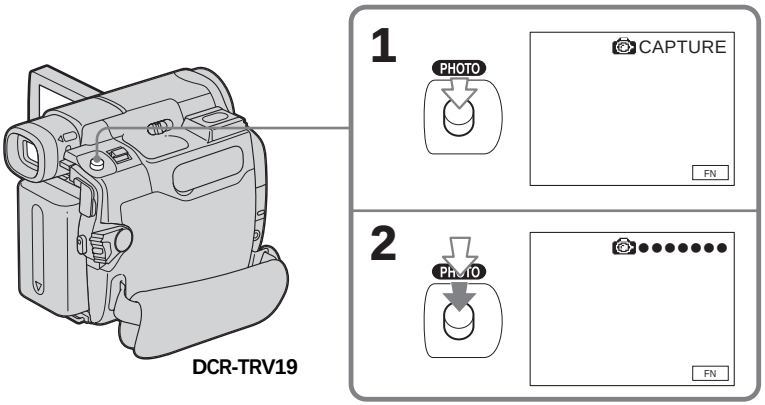
Recording a still image on a tape – Tape Photo recording (DCR-TRV19 only)

You can record still images such as photographs. You can record about 510 images in the SP mode and about 765 images in the LP mode on a 60-minute tape.

The POWER switch should be set to CAMERA.

(1) Keep pressing PHOTO lightly until a still image appears. The CAPTURE indicator appears. Recording does not start yet.
To change the still image, release PHOTO, select a still image again, and then press and hold PHOTO lightly.

(2) Press PHOTO deeply.
The still image displayed on the screen when you pressed PHOTO deeply is recorded for about 7 seconds. The sound during those 7 seconds is also recorded.
The still image is displayed on the screen until the recording is completed.



DCR-TRV19

Notes

- During tape photo recording, you cannot change the mode or setting.
- When recording a still image, do not shake your camcorder. The image may fluctuate.
- The tape photo recording function does not work when the fader function is on.

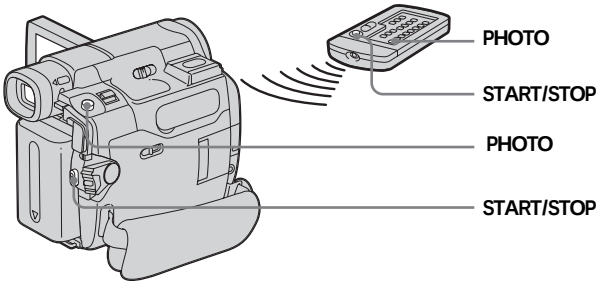
If you record a moving subject with the tape photo recording function
When you play back the still image on other equipment, the image may fluctuate.

When you press PHOTO on the Remote Commander
Your camcorder immediately records the image that is on the screen when you press the button.

To record still images on a tape during tape recording
You cannot check an image on the screen by pressing PHOTO lightly.
Press PHOTO deeply. The still image is recorded for about 7 seconds and your camcorder returns to tape recording standby.

Self-timer recording

You can record still images and moving pictures using the self-timer recording feature. You can also use the Remote Commander for this operation.



Recording on the tape

The POWER switch should be set to CAMERA.
Operate by touching the panel.

(1) During standby, press FN and select PAGE2.
(2) Press SELFTIMER.
The ⏲ (self-timer) indicator appears on the screen.
(3) Press EXIT to return to FN.
(4) Press START/STOP.
The self-timer starts counting down from about 10 while beeping. In the last 2 seconds of the countdown, the beep gets faster, then recording starts automatically.

To stop the countdown for recording on the tape

Press START/STOP. To restart the countdown, press START/STOP again.

Recording still images on the "Memory Stick" during recording standby (DCR-TRV22/TRV33 only)

The POWER switch should be set to CAMERA.
Operate by touching the panel.

(1) Follow steps 1 to 3 in "Recording on the tape."
(2) Press PHOTO deeply.
The self-timer starts counting down from about 10 while beeping. In the last 2 seconds of the countdown, the beep gets faster, then the recording starts automatically.

Recording images (DCR-TRV19 only)

The POWER switch should be set to CAMERA.
Operate by touching the panel.

(1) Follow steps 1 to 3 in “Recording on the tape.”
(2) Press PHOTO deeply.

To cancel the self-timer

During standby, press SELFTIMER and the (self-timer) indicator disappears from the screen. You cannot cancel the self-timer using the Remote Commander.

Note

You cannot stop the countdown for self-timer recording of still images.

When self-timer recording is finished

The self-timer recording is automatically canceled.

When the POWER switch is set to MEMORY (DCR-TRV22/TRV33 only)

You can also record still images onto the “Memory Stick” with the self-timer (p. 127).

Setting up a recording using the self-timer

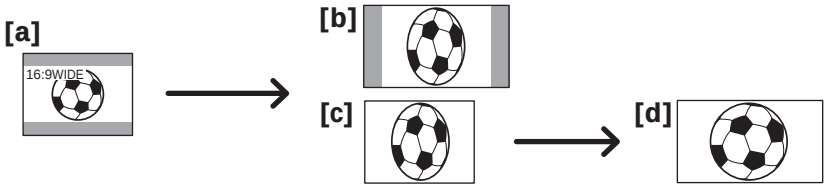
You can set up a recording using the self-timer only in recording standby mode.

Normally white balance is automatically adjusted.

The POWER switch should be set to (CAMERA) or MEMO

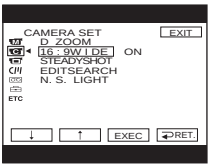
Using the wide mode

You can record a 16:9 wide picture to watch on the 16:9 wide-screen TV (16:9WIDE). Black bands appear on the screen during recording in the 16:9WIDE mode **[a].** The picture during playing back in the 4:3 mode on a wide-screen TV **[b]*** or a normal TV **[c]** are compressed in the widthwise direction. If you set the screen mode of the wide-screen TV to the full mode, you can watch pictures of normal images **[d].**
DCR-TRV33 only – If the zoom lever is set to the W (wide) side, the recording angle will become wider than that of the usual tape recording. The recording angle will not become wider with the zoom lever on the T (telephoto) side.
* The picture played back in the wide mode on a normal TV appears the same as the picture played back in the wide mode on your camcorder **[a]**.



The POWER switch should be set to CAMERA.
Operate by touching the panel.

(1) During recording standby, press FN to display PAGE1.
(2) Press MENU to display the menu.
(3) Select 16:9WIDE in , then press EXEC (p. 177).
(4) Select ON, then press EXEC.



To return to FN
Press EXIT.

To cancel the wide mode
Set 16:9WIDE to OFF in the menu settings.

Notes

- In the wide mode, you cannot operate the following functions:
 - Recording still images on the "Memory Stick" during tape recording or tape recording standby (DCR-TRV22/TRV33 only)
 - BOUNCE
 - OLD MOVIE (DCR-TRV22/TRV33 only)
- Pictures recorded on the tape in wide mode cannot be returned to normal size.

Pictures on a TV screen

Pictures recorded in the 16:9WIDE mode automatically appear on the TV screen at full size when:

- You connect your camcorder to a TV that is compatible with the video ID (ID-1/ID-2) system.
- You connect your camcorder to the S video jack on a TV.

ID-1 system

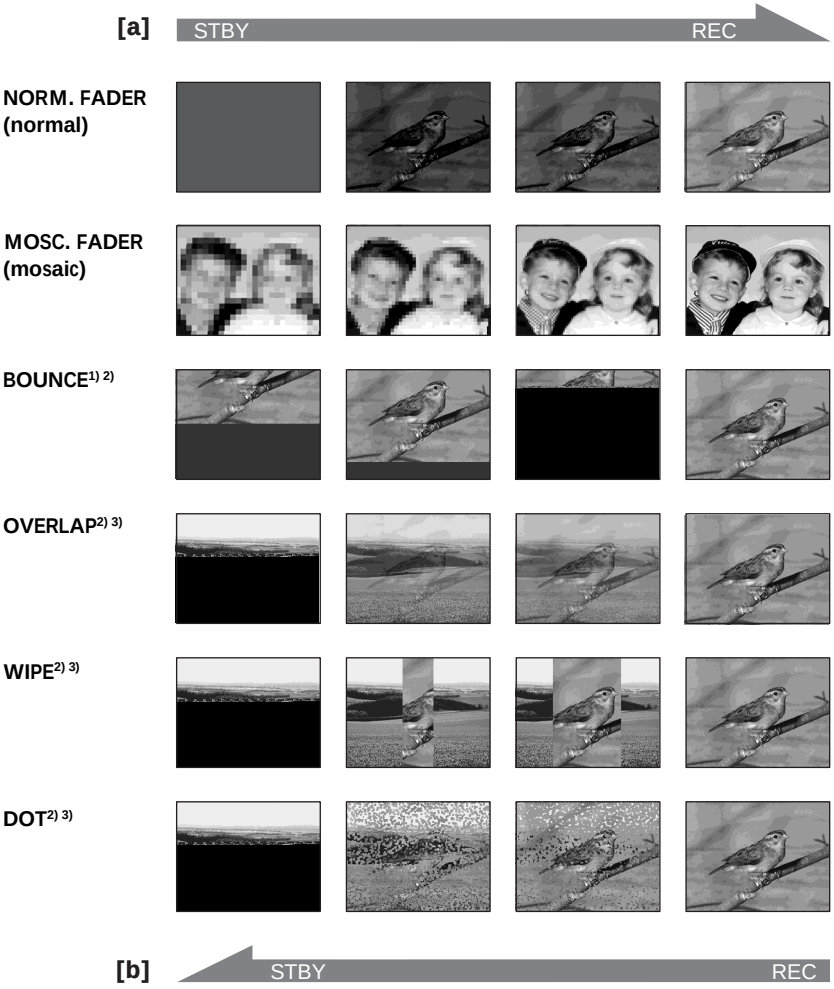
The ID-1 system sends aspect ratio information (16:9, 4:3, or letter box) with video signals. If you connect a TV compatible with the ID-1 system, the screen size is automatically selected.

ID-2 system

The ID-2 system sends a copyright protection signal with ID-1 signals inserted between video signals when you connect your camcorder to other equipment using the A/V connecting cable.

Using the fader function

You can fade in or out to give your recording a professional appearance.



MONOTONE

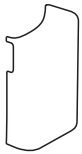
When fading in, the picture gradually changes from black-and-white to color.
When fading out, the picture gradually changes from color to black-and-white.

1) You can use BOUNCE when D ZOOM in is set to OFF in the menu settings.
2) You can fade in only.
3) DCR-TRV22 / TRV33 only

Using the fader function

The POWER switch should be set to (CAMERA).
Operate by touching the panel.

(1) When fading in [a]
Press FN to display PAGE1 during recording standby.
When fading out [b]
Press FN to display PAGE1 during recording.
(2) Press FADER. The screen to select the fader mode appears.
(3) Press a desired mode.
(4) Press ↩ OK to return to PAGE1.
(5) Press EXIT to return to FN.
The fader indicator you selected flashes.
(6) Press START/STOP.
After the fade in/out is carried out, your camcorder automatically returns to the normal mode.



To cancel the fade in/out

Before pressing START/STOP, press ↩ OFF on the FADER screen to return to PAGE1.
Press EXIT to return to FN.

Note

You cannot use the following functions while using fader. Also, you cannot use fader while using following functions:
– Super NightShot (DCR-TRV22 / TRV33 only)
– Color Slow Shutter (DCR-TRV22 / TRV33 only)
– Digital effect (DCR-TRV22 / TRV33 only)
– Interval Recording
– Frame recording

When you select OVERLAP, WIPE or DOT (DCR-TRV22/TRV33 only)

Your camcorder automatically stores the image recorded on the tape. When the image is being stored, the playback picture disappears.

During BOUNCE is on, you cannot use the following functions:

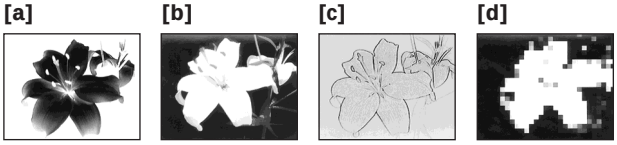
– Zoom
– Picture effect
– Manual exposure
– Flexible Spot Meter
– Manual focus
– PROGRAM AE
– Wide mode
– Photo recording in “Memory Stick” (DCR-TRV22 / TRV33 only)

Note on the BOUNCE mode

You cannot select BOUNCE in the followings:
– D ZOOM is activated in the menu settings
– Wide mode
– Picture effect
– PROGRAM AE

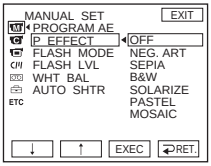
Using special effects – Picture effect

NEG. ART [a] : The color and brightness of the picture are reversed.
SEPIA : The picture is sepia.
B&W : The picture is monochrome (black-and-white).
SOLARIZE [b] : The picture looks like an illustration with strong contrast.
PASTEL [c] : The picture looks like a pale pastel drawing.
MOSAIC [d] : The picture is mosaic.



The POWER switch should be set to CAMERA.
Operate by touching the panel.

(1) Press FN to display PAGE1.
(2) Press MENU to display the menu.
(3) Select P EFFECT in M, then press EXEC (p. 176).



(4) Select a desired mode, then press EXEC.

To return to FN

Press EXIT.

To cancel picture effect

Set P EFFECT to OFF in the menu settings.

Note

While using picture effect, you cannot use following functions:
– BOUNCE
– OLD MOVIE (DCR-TRV22/TRV33 only)

Using special effects – Digital effect (DCR-TRV22/TRV33 only)

STILL
You can record a still image so that it is superimposed on a moving picture.

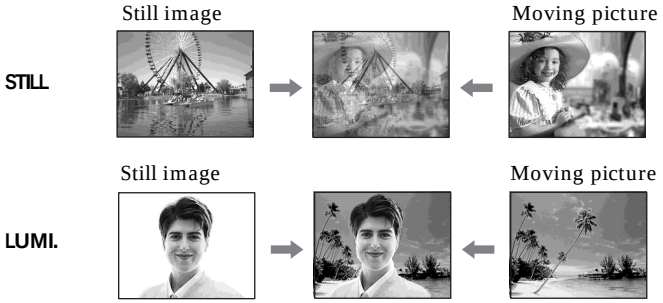
FLASH (flash motion)
You can record still images successively at regular intervals.

LUMI. (luminance key)
You can swap the brighter area in a still image with a moving picture.

TRAIL
You can record a picture so that an incidental image like a trail is left.

SLOW SHTR (slow shutter)
You can slow down the shutter speed. The SLOW SHTR mode is good for recording dark pictures more brightly.

OLD MOVIE
You can add an old movie type atmosphere to pictures. Your camcorder automatically sets the 16:9WIDE mode, picture effect to SEPIA, and the appropriate shutter speed.



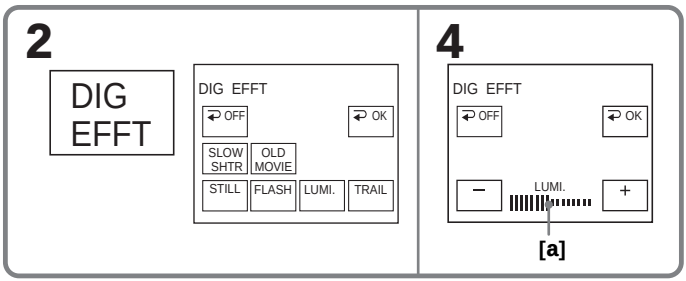
The POWER switch should be set to (CAMERA).
Operate by touching the panel.

(1) Press FN and select PAGE2.
(2) Press DIG EFFT. The screen to select a digital effect is displayed.
(3) Press a desired mode. When you select STILL or LUMI., the still image is stored in memory.
(4) Press – (to decrease the effect) / + (to increase the effect) to adjust the effect.

Items to adjust

STILL	The rate of the still image you want to superimpose on the moving picture
FLASH	The interval of flash motion
LUMI.	The color scheme of the area in the still image which is to be swapped with a moving picture
TRAIL	The vanishing time of the incidental image
SLOW SHTR	Shutter speed. The larger the shutter speed number, the slower the shutter speed.
OLD MOVIE	No adjustment is necessary.

(5) Press ⮌ OK to return to PAGE2.



[a] The bar appears when setting following digital effect modes: STILL, FLASH, LUMI., TRAIL.

To return to FN

Press EXIT.

To cancel digital effect

Press ⮌ OFF on the DIG EFFT screen to return to PAGE2.

Shutter speed

Shutter speed number	Shutter speed
SLOW SHTR 1	1/30
SLOW SHTR 2	1/15
SLOW SHTR 3	1/8
SLOW SHTR 4	1/4

Notes

- While using digital effect, you cannot use the following functions:
 – Super NightShot
 – Color Slow Shutter
 – Fader
- PROGRAM AE does not work in the SLOW SHTR mode.
- The following functions do not work in the OLD MOVIE mode:
 – Wide mode
 – Picture effect
 – PROGRAM AE

When recording in the SLOW SHTR mode

Auto focus may not be effective. Focus manually using a tripod.

SPOTLIGHT*
This mode prevents people's faces, for example, from appearing excessively white when shooting subjects lit by strong light in the theater.

PORTRAIT (soft portrait)
This mode brings out the subject while creating a soft background for subjects such as people or flowers.

SPORTS (sports lesson)*
This mode minimizes shake on fast-moving subjects such as in tennis or golf.

BEACH&SKI*
This mode prevents people's faces from appearing dark in strong light or reflected light, such as at a beach in midsummer or on a ski slope.

SUNSETMOON (sunset & moon)**
This mode allows you to maintain atmosphere when you are recording sunsets, general night views, fireworks displays and neon signs.

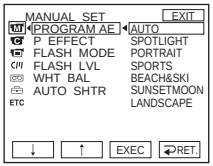
LANDSCAPE**
This mode is for when you record distant subjects such as mountains. Also it prevents your camcorder from focusing on glass or metal mesh in windows when you record a subject behind glass or a screen.



* Your camcorder focuses only on subjects in the middle to far distance.
**Your camcorder focuses only distant subject.

The POWER switch should be set to CAMERA or MEMORY (DCR-TRV22/TRV33 only).
Operate by touching the panel.

(1) Press FN to display PAGE1.
(2) Press MENU to display the menu.
(3) Select PROGRAM AE in M, then press EXEC (p. 176).



(4) Select a desired mode, then press EXEC.

To return to FN

Press EXIT.

To cancel PROGRAM AE

Set PROGRAM AE to AUTO in the menu settings.

Notes

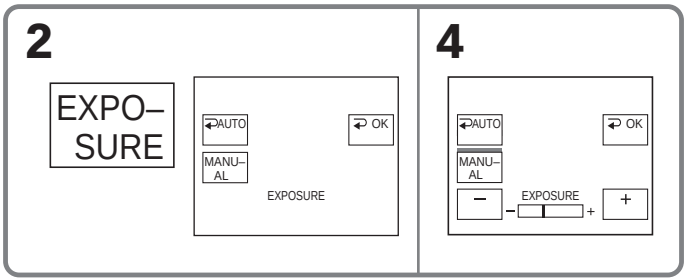
- The following functions do not work in PROGRAM AE:
 – Color Slow Shutter (DCR-TRV22/TRV33 only)
 – BOUNCE
 – SLOW SHTR (DCR-TRV22/TRV33 only)
 – OLD MOVIE (DCR-TRV22/TRV33 only)
 – Spot Focus
- PROGRAM AE does not work in the following cases (The indicator flashes.):
 – NIGHTSHOT is set to ON.
 – To record images on the "Memory Stick" using the MEMORY MIX (DCR-TRV22/TRV33 only)
- When you set the POWER switch to MEMORY, the SPORTS mode does not work. (The indicator flashes.) (DCR-TRV22/TRV33 only)

Adjusting the exposure manually

We recommend that you adjust the exposure manually in the following cases:
– When the subject is backlit
– When the subject is too bright against the background
– When recording dark pictures (e.g. night scenes) faithfully

The POWER switch should be set to CAMERA or MEMORY (DCR-TRV22/TRV33 only).
Operate by touching the panel.

(1) Press FN to display PAGE1.
(2) Press EXPOSURE. The screen to adjust the exposure appears.
(3) Press MANUAL.
(4) Adjust the exposure using – (to dim) / + (to brighten).
(5) Press ↩ OK to return to PAGE1.



To return to FN

Press EXIT.

To return to the automatic exposure

Press ↩ AUTO on the EXPOSURE screen to return to PAGE1.

Note

When you adjust the exposure manually, the following functions do not work:
– Back light
– Color Slow Shutter (DCR-TRV22/TRV33 only)

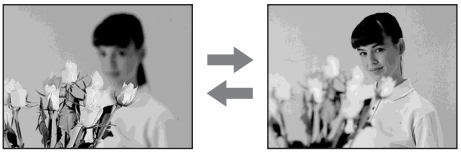
You can take a picture with the appropriate exposure automatically for just the point you want to focus on and with its exposure fixed.
Use Flexible Spot Meter in the following cases:
– The subject is backlit.
– When there is strong contrast between the subject and background such as with a subject that is on stage and lit by a spotlight.

The POWER switch should be set to CAME

Focusing manually

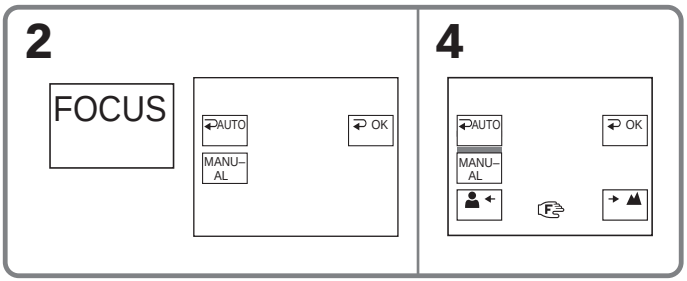
You can gain better results by manually adjusting the focus in the following cases. Normally, focus is automatically adjusted.

- The autofocus mode is not effective when shooting:
 - Subjects through glass coated with water droplets
 - Horizontal stripes
 - Subjects with little contrast with backgrounds such as walls or the sky
- Shooting a stationary subject when using a tripod
- When you want to change the focus from a subject in the foreground to a subject in the background



The POWER switch should be set to CAMERA or MEMORY (DCR-TRV22/TRV33 only).
Operate by touching the panel.

(1) Press FN to display PAGE1.
(2) Press FOCUS.
(3) Press MANUAL. The screen to adjust the focus appears.
(4) Press ← or → to sharpen focus.
(5) Press OK to return to PAGE1.



To return to FN

Press EXIT.

To return to the autofocus

On the FOCUS screen, press AUTO to return to PAGE1.

To focus precisely

It is easier to focus on the subject if you adjust the zoom to shoot at the "W" (wide-angle) position after focusing at the "T" (telephoto) position.

When you shoot close to the subject

Focus at the end of the "W" (wide-angle) position.

changes as follows:

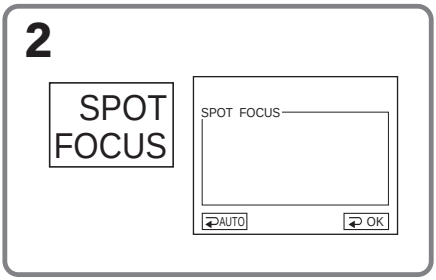
- when recording a distant subject
- when the subject is too close to focus on

Using spot focus function – Spot Focus

You can take a picture with the appropriate focus automatically for just the point you want to focus on and with its focus fixed.

The POWER switch should be set to CAMERA or MEMORY (DCR-TRV22/TRV33 only).
Operate by touching the panel.

(1) Press FN to display PAGE1.
(2) Press SPOT FOCUS. The SPOT FOCUS screen appears.
(3) Press the desired area in the frame.
The SPOT FOCUS indicator flashes on the screen. The focus of the point you selected is adjusted.
(4) Press ↩ OK to return to PAGE1.



To return to FN
Press EXIT.

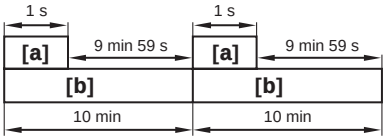
To return to the autofocus
On the SPOT FOCUS screen, press ↩ AUTO to return to PAGE1.

Notes
- Spot Focus does not work while PROGRAM AE is on.
- The back light function does not work during Spot Focus.

Interval Recording

You can make time-lapse recordings by setting your camcorder to automatically record and standby sequentially. You can achieve excellent recordings of flowers blooming, insects hatching, etc. with this function.

Example

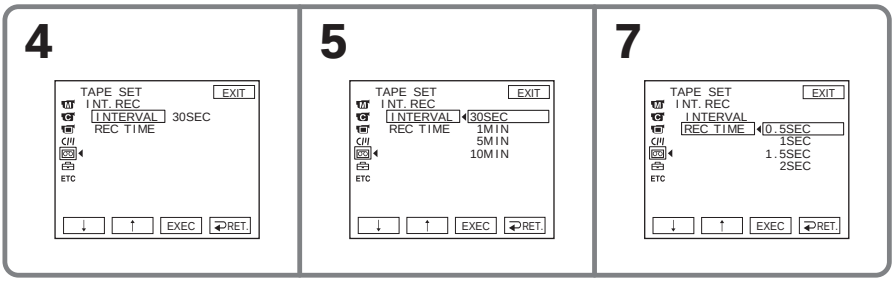


[a] REC TIME
[b] INTERVAL

There may be a discrepancy in recording time of up to +/– 6 frames from the selected time.

The POWER switch should be set to CAMERA.
Operate by touching the panel.

(1) Press FN to display PAGE1.
(2) Press MENU to display the menu.
(3) Select INT. REC in [OTHERS], then press EXEC (p. 182).
(4) Select SET, then press EXEC.
(5) Select INTERVAL, then press EXEC.
(6) Select a desired interval time, then press EXEC.
The time: 30SEC ←→1MIN ←→5MIN ←→10MIN
(7) Select REC TIME, then press EXEC.
(8) Select a desired recording time, then press EXEC.
The time: 0.5SEC ←→1SEC ←→1.5SEC ←→2SEC
(9) Press ↩ RET.
(10) Select INT. REC to ON, then press EXEC.
(11) Press EXIT to return to FN.
The INTERVAL TAPE indicator flashes on the screen.
(12) Press START/STOP to start Interval Recording.
The INTERVAL TAPE indicator lights up during Interval Recording.



To cancel Interval Recording

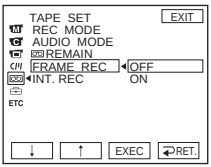
Set INT. REC to OFF in the menu settings.

Frame by frame recording – Frame recording

You can make a recording with a stop-motion animated effect using frame recording. To create this effect, alternately move the subject a little and make frame recording. We recommend that you use a tripod, and operate your camcorder using the Remote Commander to avoid camera-shake.

The POWER switch should be set to (CAMERA).
Operate by touching the panel.

(1) Press FN to display PAGE1.
(2) Press MENU to display the menu.
(3) Select FRAME REC in [📼], then press EXEC (p. 182).



(4) Select ON, then press EXEC.
(5) Press EXIT to return to FN.
The FRAME REC indicator lights up.
(6) Press START/STOP to start frame recording. Your camcorder makes a recording for about 6 frames, and returns to recording standby.
(7) Move the subject, and repeat step 6.

To cancel frame recording

Set FRAME REC to OFF in the menu settings.

Note

The proper remaining tape time is not indicated if you use frame recording continuously.

When using frame recording

The last recorded frame is longer than other frames.

Using the viewfinder

You can operate camera brightness and fader on the touch panel when looking at the viewfinder. Turn the LCD panel over and move it back to your camcorder body with the LCD screen facing out to do this operation.

The POWER switch should be set to CAMERA or MEMORY (DCR-TRV22/TRV33 only).
Operate by touching the panel.

(1) Turn the LCD panel over and move it back to your camcorder body with the LCD screen facing out, then extend the viewfinder.
(2) Press OFF. The PANEL OFF indicator appears on the screen.
(3) Press OK. The LCD screen is turned off.
(4) Using the viewfinder, press the LCD screen. EXPOSURE, OK, ON and FADER (only when the POWER switch is set to CAMERA) appear.
(5) Press the LCD screen and select a desired item, then press OK.

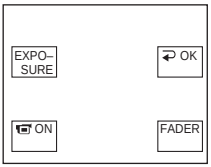
EXPOSURE: Adjust the exposure by pressing –/+.
FADER: Press FADER until a desired fader mode appears.
The indicator changes as follows:

FADER → M. FADER → BOUNCE → MONOTONE → OVERLAP* → WIPE* → DOT* → (no indicator) → FADER

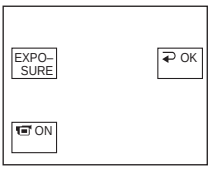
* DCR-TRV22/TRV33 only

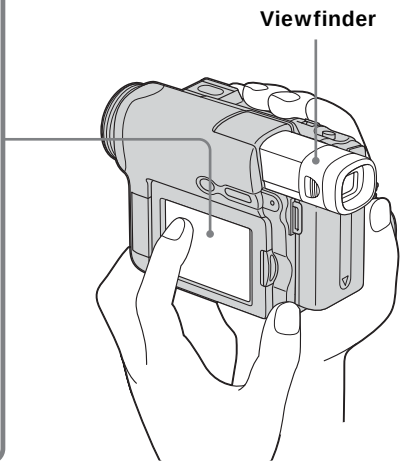
ON: The LCD screen lights up.

4 When the POWER switch is set to CAMERA



When the POWER switch is set to MEMORY (DCR-TRV22/TRV33 only)





To make the buttons on the LCD screen disappear

Press OK.

Note

When the POWER switch is set to VCR or during memory playback (DCR-TRV22/TRV33 only), you cannot operate with the touch panel using the viewfinder.

To operate the items that do not appear

Set the LCD panel and the viewfinder back to the previous position. Operate the items using the LCD screen.

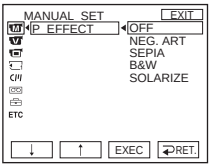
Available recording time

This is the time when you record pictures using the viewfinder (p. 19).

Playing back tape with picture effect

The POWER switch should be set to VCR.
Operate by touching the panel.

(1) During playback or playback pause, press FN to display PAGE1.
(2) Press MENU to display the menu.
(3) Select P EFFECT in , then press EXEC (p. 176).



(4) Select a desired mode, then press EXEC.
You can use NEG. ART, SEPIA, B&W and SOLARIZE.
See page 58 for details of each mode.

To return to FN

Press EXIT.

To cancel picture effect

Set P EFFECT to OFF in the menu settings.

Notes

- You cannot process externally input scenes using picture effect.
- You cannot record images on the tape on your camcorder while you are processing the image using picture effect. Record images on the "Memory Stick" (DCR-TRV22/TRV33 only, p. 118, 128), or on a VCR using your camcorder as a player.

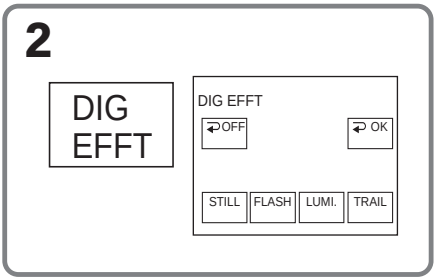
Pictures processed by picture effect

These pictures are not output through the i, DV Interface.

Playing back tape with digital effect (DCR-TRV22/TRV33 only)

The POWER switch should be set to (VCR).
Operate by touching the panel.

(1) During playback or playback pause, press FN and select PAGE2.
(2) Press DIG EFFT. The screen to select a digital effect is displayed.



(3) Select a desired mode. You can use STILL, FLASH, LUMI. and TRAIL. See page 59 for details of the each effect.
When you select STILL or LUMI., the picture that you select the mode to is stored in memory as a still image.
(4) Press –/+ to adjust the effect.
(5) Press ↩ OK to return to PAGE2.

To return to FN

Press EXIT.

To cancel digital effect

Press ↩ OFF to return to PAGE2.

Notes

- You cannot process externally input scenes using digital effect.
- You cannot record images on the tape on your camcorder while you are processing the image using digital effect. Record images on the “Memory Stick” (p. 118, 128), or on a VCR using your camcorder as a player.

Pictures processed by digital effect

These pictures are not output through the i.LINK DV Interface.

Enlarging images recorded on tape – Tape PB ZOOM (DCR-TRV22/TRV33 only)

Besides the operation described here, your camcorder can enlarge still images recorded on the "Memory Stick" (p. 140).

The POWER switch should be set to VCR.
Operate by touching the panel.

(1) During playback or playback pause, press FN and select PAGE2.
(2) Press PB ZOOM. The PB ZOOM screen appears.
(3) Press the area you want to enlarge in the frame.
The area you pressed moves to the center of the screen, and the playback image is enlarged to about twice the size. If you press another area again, the area moves to the center of the screen.
(4) Adjust the zoom ratio by the power zoom lever.
You can select the zoom ratio from approximately 1.1 times up to 5 times its size.
W: Decrease the zoom ratio.
T: Increase the zoom ratio.

To cancel tape PB ZOOM

Press ↩ END.

Notes

- You cannot process external
camcorder.
- You cannot record i
the image using
Stick" (DCR
- You ca
yo

During ta

If you press D
cannot move the

Edge of the enlarged i

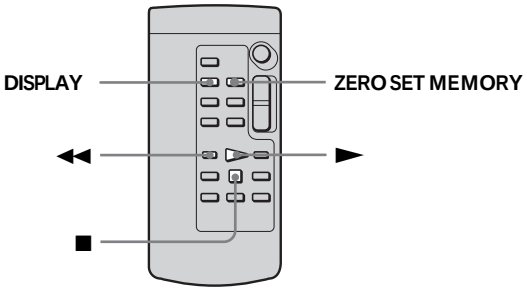
The edge of the enlarged i

Quickly locating a scene – Zero set memory

Your camcorder automatically searches for a desired scene having the tape counter value of “0:00:00.” Use the Remote Commander for this operation.

The POWER switch should be set to (VCR).

(1) During playback, press ZERO SET MEMORY on the Remote Commander at the point you want to locate later. The tape counter shows “0:00:00,” then starts counting. The ZERO SET MEMORY indicator flashes. If the indicators do not appear, press DISPLAY.
(2) Press ■ when you want to stop playback.
(3) Press ◄◄ to rewind the tape to the tape counter’s zero point. The tape stops automatically when the tape counter reaches approximately zero.
(4) Press ►. Playback starts from the counter’s zero point.



Notes

- When you press ZERO SET MEMORY before rewinding the tape, the zero set memory function will be canceled.
- There may be a discrepancy of several seconds between the time code and the tape counter.
- The ZERO SET MEMORY indicator disappears when you press FN.

If the tape has a blank portion in the recorded sections

The zero set memory function may not work correctly.

Searching the boundaries of recorded tape by title – Title search

Use the cassette with Cassette Memory for this operation.
Use the Remote Commander for this operation.

Before operation
Set CM SEARCH in [CM] to ON in the menu settings. (The default setting is ON.)

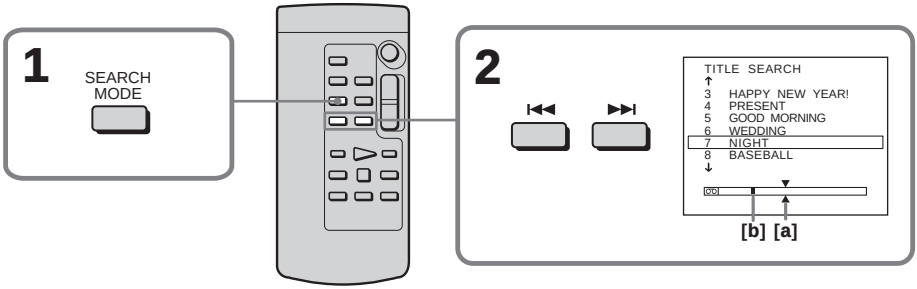
The POWER switch should be set to (VCR).

(1) Press SEARCH MODE on the Remote Commander repeatedly, until the TITLE SEARCH indicator appears.
The title search screen appears.
The indicator changes as follows:

TITLE SEARCH → DATE SEARCH → PHOTO SEARCH* → (no indicator) ← PHOTO SCAN* ←

* DCR-TRV19 only

(2) Press ⏮ or ⏭ on the Remote Commander to select the title for playback.
Your camcorder automatically starts playback of the scene having the title that you selected.



[a] Actual point you are trying to search for
[b] Present point on the tape

To cancel searching

Press ■ on the Remote Commander.

If the tape has a blank portion between recorded portions
Title search may not work correctly.

To superimpose a title
See page 101.

Searching a recording by date – Date search

• DATE SEARCH by using Cassette Memory
→ Select the date from the list of recording dates displayed on the screen
• DATE SEARCH without using Cassette Memory
→ Search for the point where the recording date changed
Use the Remote Commander for this operation.

Searching for the date by using Cassette Memory

Before operation

• You can use this function only when playing back the cassette with Cassette Memory.
• Set CM SEARCH in [CM] to ON in the menu settings. (The default setting is ON.)

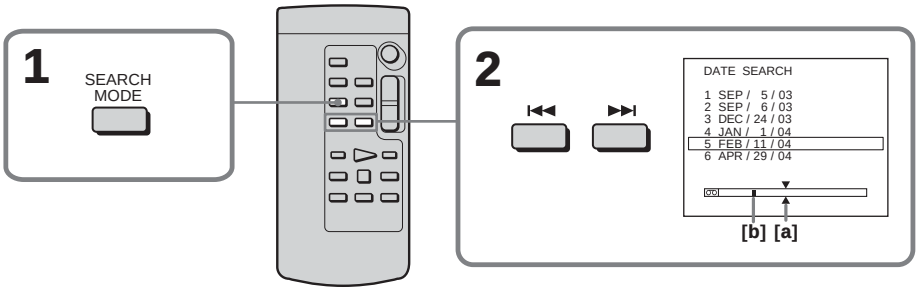
The POWER switch should be set to (VCR).

(1) Press SEARCH MODE on the Remote Commander repeatedly, until the DATE SEARCH indicator appears.
The date search screen appears.
The indicator changes as follows:

TITLE SEARCH → DATE SEARCH → PHOTO SEARCH* → (no indicator) → PHOTO SCAN* →

* DCR-TRV19 only

(2) Press ⏮ or ⏭ on the Remote Commander to select the date for playback.
Your camcorder automatically starts playback at the beginning of the selected date.



[a] Actual point you are trying to search for
[b] Present point on the tape

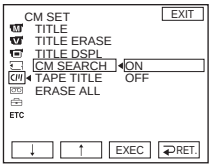
To cancel searching

Press ■ on the Remote Commander.

Searching for the date without using Cassette Memory

The POWER switch should be set to VCR.
Operate by touching the panel.

(1) Press FN to display PAGE1.
(2) Press MENU to display the menu.
(3) Select CM SEARCH in CM, then press EXEC (p. 181).



(4) Select OFF, then press EXEC.
(5) Press SEARCH MODE on the Remote Commander repeatedly, until the DATE SEARCH indicator appears.
(6) Press ⏮ on the Remote Commander to search for the previous date or press ⏭ on the Remote Commander to search for the next date. Your camcorder automatically starts playback at the point where the date changes. Each time you press ⏮ or ⏭, your camcorder searches for the previous or next date.

To cancel searching

Press ■ on the Remote Commander or ■ on your camcorder.

Note

If one day's recording is less than 2 minutes, your camcorder may not accurately find the point where the recording date changes.

If the tape has a blank portion between recorded portions

Date search may not work correctly.

Cassette Memory

The cassette with Cassette Memory can hold 6 recording date data. If you search the date among 7 or more data, see "Searching for the date without using Cassette Memory."

Searching for a photo – Photo search/ Photo scan (DCR-TRV19 only)

You can search for a still image you have recorded on a tape **(PHOTO SEARCH)**. You can also search for still images one after another and display each image for five seconds automatically regardless of the cassette memory **(PHOTO SCAN)**. Use the Remote Commander for these operations.
Use this function to check or edit still images.

Searching for a photo by using cassette memory

Before operation

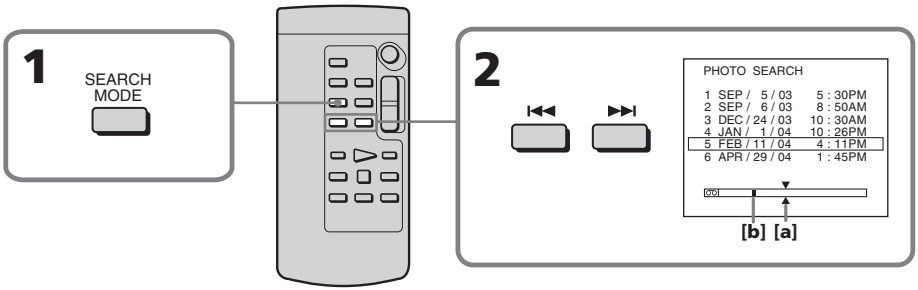
- You can use this function only when playing back a tape with cassette memory.
- Set CM SEARCH to ON in the menu settings. (The default setting is ON.)

The POWER switch should be set to (VCR).

(1) Press SEARCH MODE on the Remote Commander repeatedly, until the PHOTO SEARCH indicator appears.
The indicator changes as follows:

→TITLE SEARCH→ DATE SEARCH→ PHOTO SEARCH
(no indicator) ← PHOTO SCAN ←

(2) Press ⏮ or ⏭ on the Remote Commander to select the date for playback. Your camcorder automatically starts playback of the photo having the date that you selected.



[a] Actual point you are trying to search for
[b] Present point on the tape

To stop searching

Press ■ on the Remote Commander.

Searching for a photo without using cassette memory

The POWER switch should be set to (VCR).
Operate by touching the panel.

(1) Press FN to display PAGE1.
(2) Press MENU to display the menu.
(3) Select CM SEARCH in [CAM], then press EXEC (p. 181).

(4) Select OFF, then press EXEC.

(5) Press SEARCH MODE on the Remote Commander repeatedly, until the PHOTO SEARCH indicator appears.
The indicator changes as follows:

→DATE SEARCH→PHOTO SEARCH
(no indicator) ← PHOTO SCAN ←

(6) Press ⏮ or ⏭ on the Remote Commander to select the photo for playback.
Each time you press ⏮ or ⏭, your camcorder searches for the previous or next photo.
Your camcorder automatically starts playback of the photo.

To stop searching

Press ■ on the Remote Commander or ■ on your camcorder.

Scanning photo

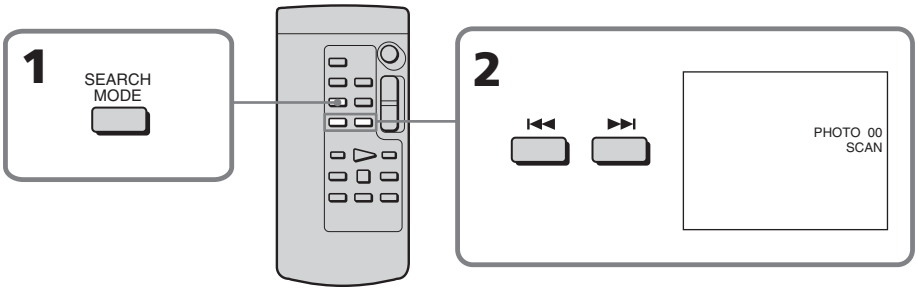
The POWER switch should be set to VCR.

(1) Press SEARCH MODE on the Remote Commander repeatedly, until the PHOTO SCAN indicator appears.
The indicator changes as follows:

→TITLE SEARCH*→ DATE SEARCH→ PHOTO SEARCH
(no indicator) ← PHOTO SCAN ←

* TITLE SEARCH appears only when CM SEARCH is set to ON in the menu settings.

(2) Press ⏮ or ⏭ on the Remote Commander.
Each photo is played back for about 5 seconds automatically.



To stop scanning

Press ■ on the Remote Commander or ■ on your camcorder.

If a tape has a blank section between recorded sections
PHOTO SEARCH and PHOTO SCAN may not work correctly.

The available number of photos that can be searched using the cassette memory
The available number is up to 12 photos. However, you can search 13 photos or more using the photo scan function.



Dubbing

If you are connecting the VCR with the A/V connecting cable

- Set DISPLAY in ETC to LCD in the menu settings. (The default setting is LCD.)
- If a search indicator is displayed, press SEARCH MODE on the Remote Commander to turn it off.
- If you want to dub the data code, display it on the screen.
- If you want to dub the title, set TITLE DSPL in CTL to ON in the menu settings. (The default setting is ON.)

If you are connecting the VCR with the i.LINK cable

- Recording of only the picture or sound cannot be done.
- Titles, screen indicators, Cassette Memory contents, and “Memory Stick” index screen lettering cannot be recorded.

The POWER switch should be set to (VCR).

(1) Insert a blank tape (or the tape you want to record over) into the VCR, and insert the recorded tape into your camcorder.
(2) Prepare the VCR for recording. If the VCR has an input selector, set it to input. Refer to the operating instructions of the VCR.
(3) Play back the recorded tape on your camcorder.
(4) Start recording on the VCR.
Refer to the operating instructions of your VCR.

When you have finished dubbing the tape

Press ■ on both your camcorder and the VCR.

You can edit on VCRs that support the following systems

8 mm 8, Hi8 Hi8, Digital8 D8, VHS VHS, S-VHS S-VHS, VHSC VHSC, S-VHSC S-VHSC, Betamax β, ED Betamax ED Beta, mini DV Mini DV, DV DV and MICROMV MICRO MV

If your VCR is a monaural type

Connect the yellow plug of the A/V connecting cable to the video input jack and the white or the red plug to the audio input jack on the VCR or the TV. When the white plug is connected, the left channel audio is output, and when the red plug is connected, the right channel audio is output.

If your VCR has an S video jack

See page 45 for details.

About i.LINK

See page 202 for details.

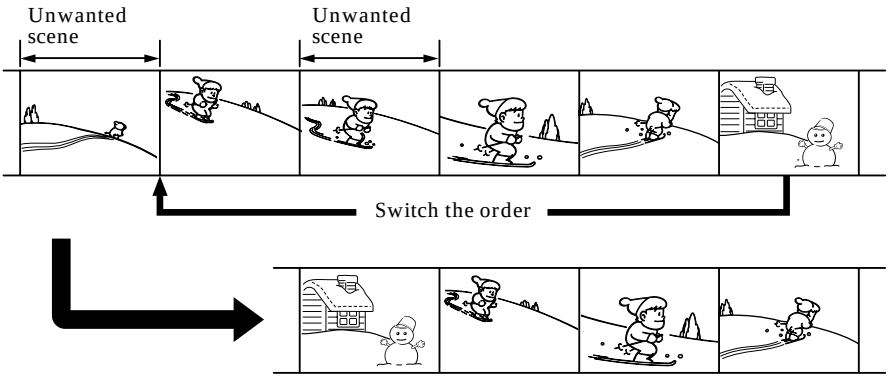
Dubbing tape

Pictures processed by picture effect, digital effect* or PB ZOOM*
These are not output through the i, DV Interface.
* DCR-TRV22/TRV33 only

If you record a paused playback picture
- The recorded picture becomes rough with the i, DV Interface.
- The picture may jitter when you play back the picture using other video equipment.

Dubbing only desired scenes – Digital program editing (on tape)

You can duplicate selected scenes (programs) for editing onto the tape without operating the VCR.
Scenes can be selected by frame. You can set up to 20 programs.
Your camcorder can dub on the "Memory Stick" (DCR-TRV22/TRV33 only). See page 130 for details.



Before operating Digital program editing on the tape recorded on other equipment

Step 1 Connecting to the VCR.
Step 2 Setting the VCR to operate (p. 85).
Step 3 Adjusting the synchronization of the VCR (p. 88).

When you dub using the same VCR again, you can skip steps 2 and 3.

Using Digital program editing on the tape recorded on other equipment

Operation 1 Making a program (p. 90).
Operation 2 Performing Digital program editing (Dubbing the tape) (p. 92).

Note

When editing digital video, the operation signals to the VCR cannot be sent with LANC jack.

Step 1: Connecting to the VCR

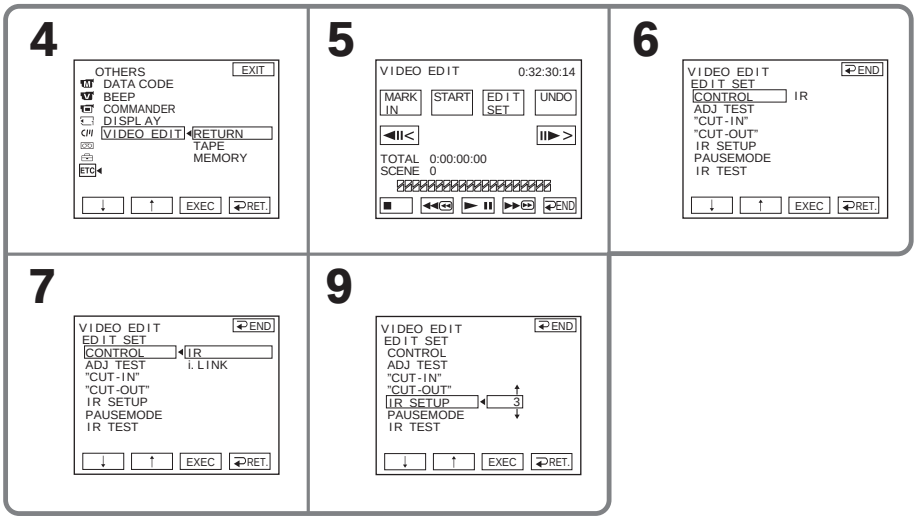
You can connect either the A/V connecting cable or the i.LINK cable.
Connect the devices as illustrated on page 81.

Step 2: Setting the VCR to operate

When you are connecting the camcorder and VCR using the A/V connecting cable, the signal is emitted from the infrared rays emitter of your camcorder to the remote sensor on the VCR to control the VCR.

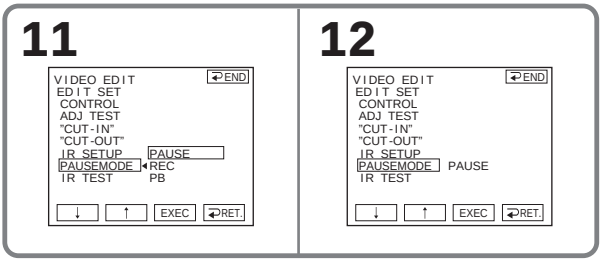
The POWER switch should be set to (VCR).
Operate by touching the panel.

(1) Turn the power of the connected VCR on. If the VCR has an input selector, set it to input.
When you connect a video camera recorder, set its power switch to VCR/VTR.
(2) Press FN to display PAGE1.
(3) Press MENU to display the menu.
(4) Select VIDEO EDIT in ETC, then press EXEC (p. 185).
(5) Select TAPE, then press EXEC (DCR-TRV22/TRV33 only).
(6) Press EDIT SET.
(7) Select CONTROL, then press EXEC.
(8) When connecting with the A/V connecting cable, select IR, then press EXEC.
When connecting with the i.LINK cable, select i.LINK, press EXEC, then go to "Step 3: Adjusting the synchronization of the VCR" on page 88.
(9) Select IR SETUP, then press EXEC.
(10) Select the IR SETUP code of your VCR, then press EXEC. Check the code in "About the IR SETUP code" (p. 87).

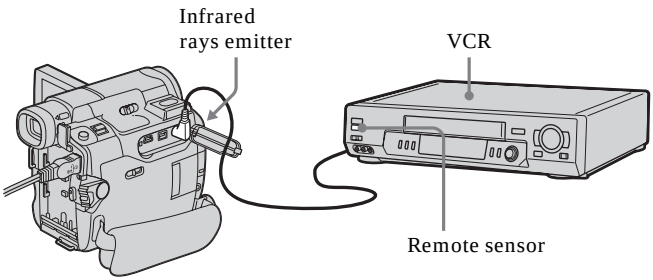


(11) Select PAUSEMODE, then press EXEC.

(12) Select the mode to cancel recording pause on the VCR, then press EXEC.
The correct button depends on your VCR.
Refer to the operating instructions of your VCR.



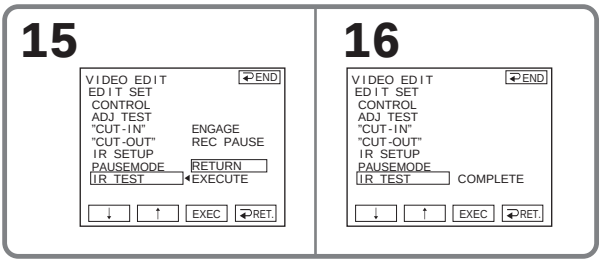
(13) Locate the infrared rays emitter of your camcorder and face it towards the remote sensor of the VCR about 30 cm (12 in.) apart.



(14) Insert a recordable tape into the VCR, then set the VCR to recording pause.

(15) Select IR TEST, then press EXEC.

(16) Select EXECUTE, then press EXEC.
If the VCR starts recording, the setting is correct.
The indicator you selected to cancel recording pause on the VCR flashes on the screen. When finished, the indicator changes to COMPLETE.



Note

When you connect with the i.LINK cable, you may not be able to operate the dubbing function correctly, depending on the VCR.
Set CONTROL to IR in the menu settings of your camcorder.

About the IR SETUP code

The IR SETUP code is stored in the memory of your camcorder. Be sure to set the correct code, depending on your VCR. Default setting is code number 3.

Brand	IR SETUP code
Sony	1, 2, 3, 4, 5, 6
Admiral (M. Wards)	89
Aiwa	47, 54, 80
Akai	49, 51
Audio Dynamic	21, 35
Bell&Howell (M. Wards)	36
Broksonic	21, 70, 82
Canon	77, 78
Citizen	47
Craig	47, 73
Curtis Mathis	8, 77, 80
Daewoo	26, 40, 77
DBX	21, 33, 35
Dimensia	8
Emerson	26, 48, 59, 70, 80, 81, 82
Fisher	36, 37, 44, 45
Funai	80
General Electric	8, 32*, 77, 94*, 101
Goldstar / LG	47
GO VIDEO	71
Hitachi	8, 42, 78
HQ	40
Instant Replay	77, 78
JC Penny	8, 21, 33, 35, 36, 42, 77
JVC	12, 13, 14, 21, 33, 35
Kenwood	21, 33, 35, 47
LXI (Sears)	36, 37, 42, 44, 45, 47, 49, 80
Magnavox	17, 77, 78, 83
Marantz	21, 33, 35
Marta	47
Memorex	37, 77
Minolta	8, 42
Mitsubishi / MGA	22, 23, 24, 28, 29
Multitech	23, 32, 80
NEC	21, 33, 35
Olympic	77, 78
Optimus	22
Orion	60
Panasonic	16, 17, 77, 78
Pentax	8, 42
Philco	26, 70, 77, 78
Philips	47, 77, 78, 83
Pioneer	78
Quasar	6, 16, 17, 77, 78
RCA / PROSCAN	7, 8, 16, 40, 41, 42, 77, 78, 78*, 83, 101
Realistic	22, 36, 37, 77, 80, 88
Sansui	21
Singer	73
Samsung	24, 24*, 32, 32*, 41, 94, 94*
Sanyo	26, 36, 37, 47
Scott	22, 23, 24, 28, 32, 37, 40, 41
Sharp	88, 89
Shintom	73
Signature 2000	80, 89
Sylvania	77, 78, 80, 83
Symphonic	80
Tashiro	47
Tatung	21, 33, 35
Teac	21, 33, 35, 80
Technics	77, 78
Toshiba	7, 40, 49
Wards	37, 47, 88, 89, 95
Yamaha	21, 33, 35, 36
Zenith	95

* TV / VCR component

Note on the IR SETUP code

Digital program editing is not possible if the VCR does not support IR SETUP codes.

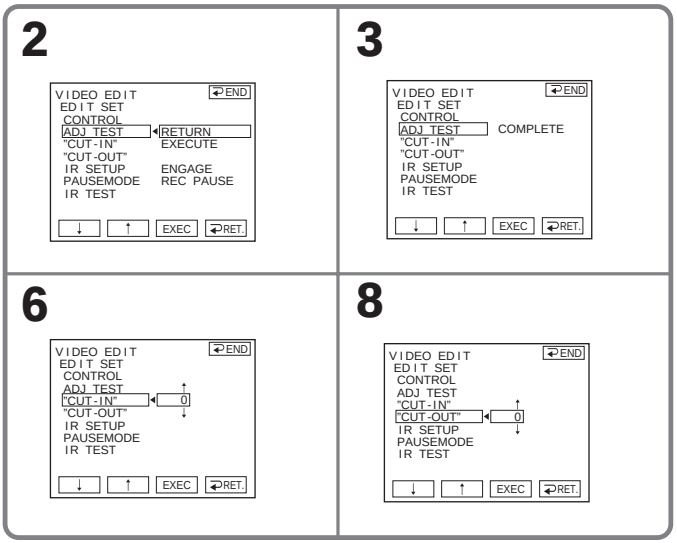
When the VCR does not operate correctly

- After checking the code in "About the IR SETUP code" (p. 87), set the IR SETUP or the PAUSEMODE again.
- Place your camcorder at least 30 cm (12 in.) away from the VCR.
- Refer to the operating instructions of your VCR.

Step 3: Adjusting the synchronization of the VCR

You can adjust the synchronization of your camcorder and the VCR.
Prepare a pen and paper for notes.
Before operation, eject the cassette from your camcorder (if inserted).

(1) Insert the recordable cassette into the VCR, then set the VCR to recording pause.
When you select i.LINK in CONTROL, the recording pause is not necessary.
(2) Select ADJ TEST, then press EXEC.
(3) Select EXECUTE, then press EXEC.
IN and OUT are recorded on an image for 5 times each to calculate the number values for adjusting the synchronization.
The EXECUTING indicator flashes on the screen. When finished, the indicator changes to COMPLETE.
(4) Rewind the tape in the VCR, then start slow playback.
5 IN numbers and corresponding OUT numbers are displayed.
Take a note of the opening number value of each IN and the closing number value of each OUT.
(5) Calculate the average of 5 opening number values of 5 IN, and the average of all the closing number values of each OUT.
(6) Select "CUT-IN," then press EXEC.
(7) Select the average number value of IN, then press EXEC.
The calculated start position for recording is set.
(8) Select "CUT-OUT," then press EXEC.
(9) Select the average number value of OUT, then press EXEC.
The calculated stop position for recording is set.
(10) Press ↩ RET. to execute.

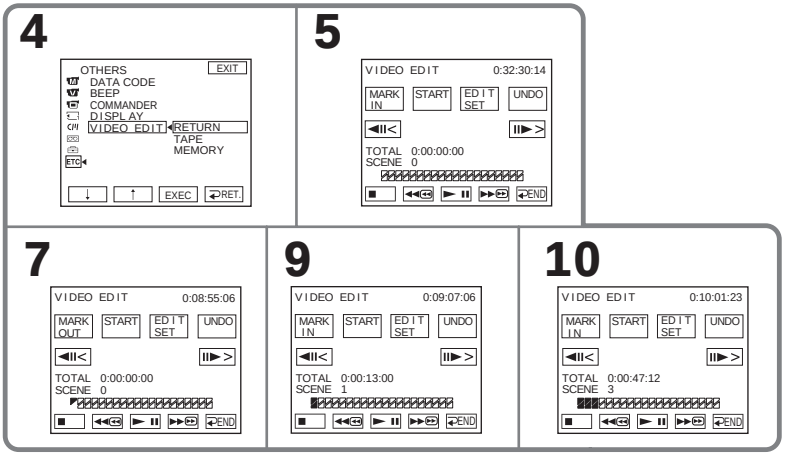


Notes

- When you complete “Step 3: Adjusting the synchronization of the VCR,” the image to adjust the synchronization is recorded for about 50 seconds.
- If you start recording from the very beginning of the tape, the first few seconds of the tape may not be recorded properly. Be sure to allow about 10 seconds’ lead before starting the recording.
- When the recording unit cannot be operated properly by the i.LINK cable, leave the connection as it is, and make the A / V connecting cable settings (p. 85). Video and audio are sent by digital signals.

Operation 1: Making a Program

(1) Insert the cassette for playback into your camcorder, and insert the tape for recording into the VCR.
(2) Press FN to display PAGE1.
(3) Press MENU to display the menu.
(4) Select VIDEO EDIT in ETC, then press EXEC (p. 185).
(5) Select TAPE, then press EXEC (DCR-TRV22 / TRV33 only).
(6) Search for the beginning of the first scene you want to insert using the video control buttons on the screen, then pause playback. You can fine-adjust one frame at a time with ◄II< / >II►.
(7) Press MARK IN on the screen.
The IN point of the first program is set, and the upper part of the program mark changes to light blue.
(8) Search for the end of the first scene you want to insert using the video control buttons on the screen, then pause playback. You can fine-adjust one frame at a time with ◄II< / >II►.
(9) Press MARK OUT on the screen.
The OUT point of the first program is set, then the lower part of the program mark changes to light blue.
(10) Repeat steps 6 to 9.
When one program is set, the program mark changes to light blue.
You can set 20 programs in maximum.



To finish making programs

Press ↩ END.
The program is stored in memory until the tape is ejected.

Note
You cannot operate recording during Digital program editing.

On a blank portion of the tape
You cannot set IN or OUT.

If there is a blank portion between the IN point and the OUT point on the tape
The total time may not be displayed correctly.

Erasing the program you have set

Erase OUT mark first, and then IN mark of the last set program.

(1) Follow steps 2 to 5 on page 90.
(2) Press UNDO.
(3) Press ERASE 1 MARK. The last set program mark flashes, then the DELETE ? indicator appears.
(4) Press EXEC. The last set program is deleted.

To cancel erasing
Press CANCEL in step 4.

Erasing all programs

(1) Follow steps 2 to 5 on page 90.
(2) Press UNDO.
(3) Press ERASE ALL. All the set program marks flash, then the DELETE ? indicator appears.
(4) Press EXEC. All the set programs are deleted.

To cancel erasing all programs
Press CANCEL in step 4.

Operation 2: Performing Digital program editing (Dubbing the tape)

The POWER switch should be set to (VCR).
Operate by touching the panel.

(1) When you use a digital video camera recorder, set the power switch of VCR to VCR/VTR.
(2) Make sure your camcorder and the VCR are connected, and that the VCR is set to recording pause.
When you use the i.LINK cable, this step is not necessary.
(3) Press FN to display PAGE1.
(4) Press MENU to display the menu.
(5) Select VIDEO EDIT in ETC, then press EXEC (p. 185).
(6) Select TAPE, then press EXEC (DCR-TRV22/TRV33 only).
(7) Press START.
(8) Press EXEC.
Search for the beginning of the first program, then start dubbing.
The program mark flashes.
The SEARCH indicator appears during searching, and the EDITING indicator appears during editing on the screen.
When the dubbing ends, your camcorder and the VCR automatically stop.

To cancel dubbing during editing

Press CANCEL.

To end Digital program editing

Your camcorder stops when the dubbing is complete. Then the display returns to VIDEO EDIT in the menu settings.
Press ↩ END to end the video edit function.

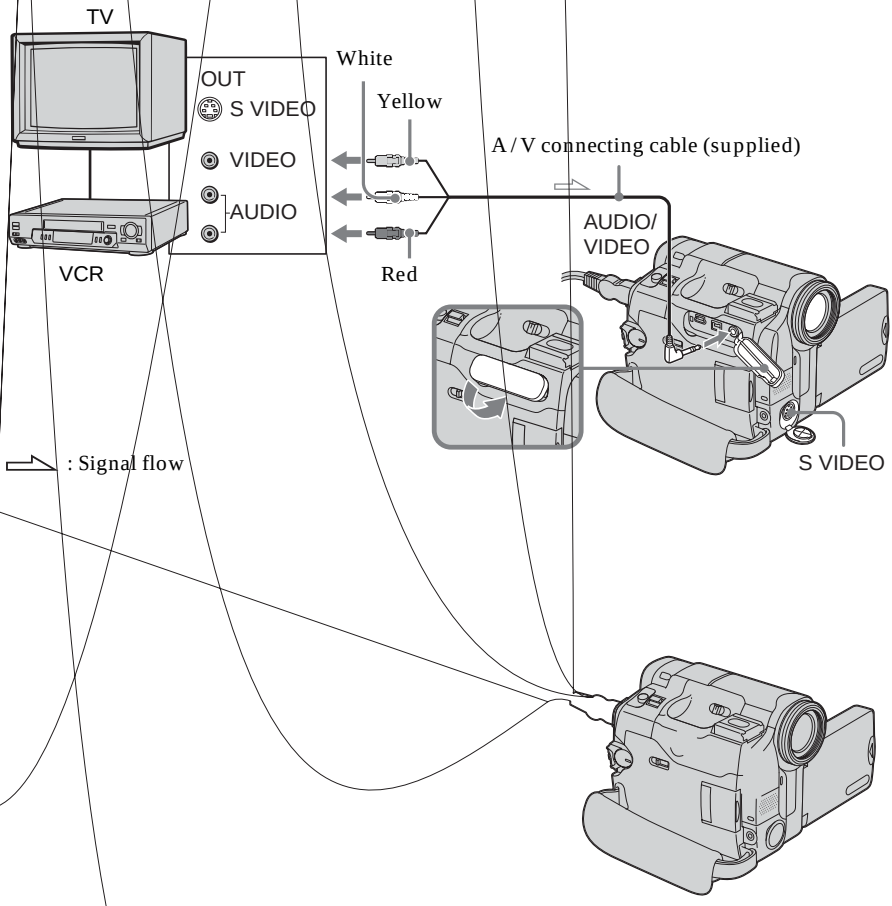
When the program has not been set

You cannot press START.

You cannot record on the VCR in the following

Indicator	Cause
No indicator	• The write-protect tab on the cassette is set to lock. • The IR SETUP code is not correct. (When IR is selected.) • The button to cancel recording pause is not correct. (When IR is selected.)
CHECK ”i.LINK” & REC STATUS	• i.LINK is selected but the i.LINK cable is not connected. • The power of the connected VCR is not turned on. (When i.LINK is selected.)

Recording video or TV programs



If your VCR is a monaural type (DCR-TRV22/TRV33 only)
Connect the yellow plug of the A/V connecting cable to the video output jack and the white or red plug to the audio output jack on the VCR or the TV. When the white plug is connected, the left channel audio is output, and when the red plug is connected, the right channel audio is output.

If your VCR has an S video jack (DCR-TRV22/TRV33 only)
See page 45 for details.

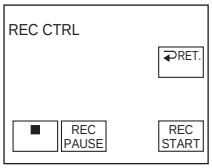
When using the i.LINK cable
- Before recording, make sure if the DV IN indicator appears on the screen. The DV IN indicator may appear on both equipment.
- Recording of only the picture or sound cannot be done.

Dubbing

Before operation
Set DISPLAY in ETC to LCD in the menu settings when using the A/V connecting cable. (The default setting is LCD.)

The POWER switch should be set to VCR.
Operate by touching the panel.

(1) Insert the blank tape (or the tape you want to record over) into your camcorder. If you are recording the tape from the VCR, insert the recorded tape into the VCR.
(2) Press FN and select PAGE3.
(3) Press REC CTRL.

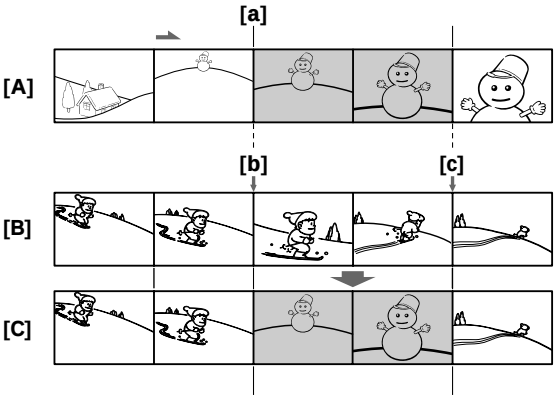


(4) Press REC PAUSE.
(5) Press ► on the VCR to start playback if you record the tape from a VCR. Select a TV program if you record from a TV. The picture from playback side appears on the screen.
(6) Press REC START at the scene where you want to start recording from.

When you have finished dubbing the tape
Press ■ on your camcorder, and then press the stop button on the VCR.

Inserting a scene from a VCR – Insert editing

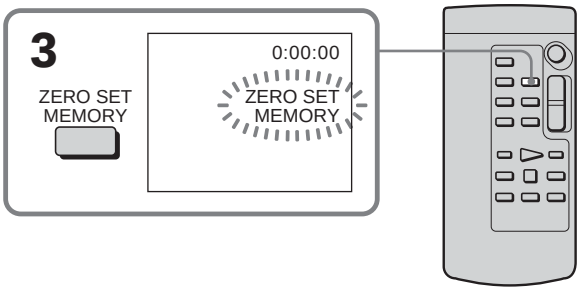
You can insert a new scene with sound from a VCR onto your originally recorded tape by specifying the insert start and end points. Use the Remote Commander for this operation.
Connections are the same as on page 93. Insert a cassette containing the desired scene to insert into the VCR.



[A] The tape that contains the scene to be superimposed
[B] The tape before editing
[C] The tape after editing

The POWER switch should be set to (VCR).
Operate by touching the panel.

(1) On the VCR, locate just before the insert start point **[a]**, then set the VCR to playback pause.
(2) On your camcorder, locate the insert end point **[c]**, then set it to playback pause.
(3) Press ZERO SET MEMORY on the Remote Commander. The ZERO SET MEMORY indicator flashes and the end point of the insert is stored in memory. The tape counter shows "0:00:00."
(4) On your camcorder, locate the insert start point **[b]**.
(5) Press FN and select PAGE3.
(6) Press REC CTRL.
(7) Press REC PAUSE.
(8) First press ❚❚ on the VCR, and after a few seconds press REC START on your camcorder to start inserting the new scene with sound.
Inserting automatically stops near the zero point on the tape counter. Your camcorder automatically stops recording and the point you set in step 3 is cleared from memory.



To change the insert end point

Press ZERO SET MEMORY on the Remote Commander again after step 4 to erase the ZERO SET MEMORY indicator and begin from step 2.

To insert a scene without setting the insert end point

Skip steps 2 and 3. Press ■ on the Remote Commander or ■ on your camcorder when you want to stop inserting.

Audio dubbing

You can record additional audio to the original sound on the tape by connecting audio equipment or a microphone. If you connect the audio equipment, you can add sound to your tape already recorded in the 12-bit mode by specifying starting and ending points. The original sound will not be erased.

Preparing for audio dubbing

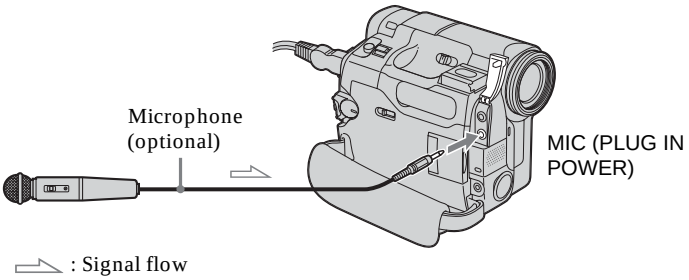
You can record additional audio in the following:
- Dubbing with the built-in microphone
- Connecting the microphone (optional) to the MIC jack
- Connecting the microphone (optional) to the intelligent accessory shoe
- Connecting the A / V connecting cable to the AUDIO / VIDEO jack (DCR-TRV22 / TRV33 only)

The audio input to be recorded will take precedence over others in the following order:
- MIC jack
- Intelligent accessory shoe
- AUDIO / VIDEO jack (DCR-TRV22 / TRV33 only)
- Built-in microphone

Dubbing with the built-in microphone

No connection is necessary. (If no external microphone is connected, audio recording will be performed automatically by the built-in microphone.)

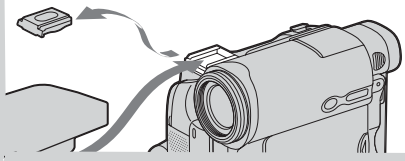
Connecting the microphone (optional) to the MIC jack



You can check the recorded picture and sound by connecting the AUDIO / VIDEO jack to a TV.
The recorded sound is not output from the speaker. Check the sound by using the headphones or TV.

g the microphone (optional) to the intelligent shoe

oe cover, then connect the microphone.



AUDIO

nect the
llow) plug.

: Signal

Note

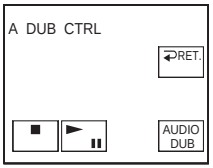
When dubbing with the AUDIO / VIDEO jack (DCR-TR
microphone, pictures are not output through the S VIDEO jack o
Check the recorded picture on the screen. You can check the recorded sound
headphones.

Adding an audio sound on the recorded tape

Choose a connection mentioned on page 97, and connect audio equipment or microphone to your camcorder. Then follow the procedure below.

The POWER switch should be set to (VCR).
Operate by touching the panel.

(1) Insert the recorded tape into your camcorder.
(2) Locate the recording start point. Press ►II to start playing back. To pause playing back, press ►II at the recording start point. You can fine adjust the recording start point by pressing ◄II< / >II►.
(3) Press FN and select PAGE3.
(4) Press A DUB CTRL.
The A DUB CTRL screen appears.



(5) Press AUDIO DUB. The green ●II indicator appears on the screen.
(6) Press ►II on your camcorder and at the same time start playing back the audio you want to record.
The new sound is recorded in stereo 2 (ST2) during playback. While recording new sound, the red ● indicator appears on the screen.
(7) Press ■ on your camcorder at the point where you want to stop recording.

You cannot perform audio dubbing:
• On the tape recorded in the 16-bit mode
• On the tape recorded in the LP mode
• When the i.LINK DV Interface is connected
• On blank portions of a tape
• When the write-protect tab of the cassette is set to lock

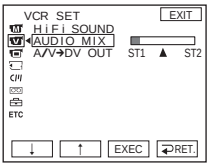
To add new sound to previously recorded sections more precisely
During playback, press ZERO SET MEMORY at the point where you want to stop recording new sound.
Follow the procedure on page 75. Recording automatically stops at the point where ZERO SET MEMORY was pressed.

We recommend that you add new sound on the tape recorded with your camcorder
If you add new sound on the tape recorded with another camcorder (including other DCR-TRV19 / TRV22 / TRV33), the sound quality may become deteriorated.

Monitoring the new recorded sound

The POWER switch should be set to (VCR).
Operate by touching the panel.

(1) Play back the tape on which you added audio.
(2) Press FN to display PAGE1.
(3) Press MENU to display the menu.
(4) Select AUDIO MIX in , then press EXEC (p. 178).



(5) Press ↓/↑ to adjust the balance between the original sound (ST1) and the new sound (ST2), then press EXEC.
About 5 minutes after you disconnect the power source or remove the battery pack, the setting of AUDIO MIX returns to the original sound (ST1) only. The default setting is original sound only.

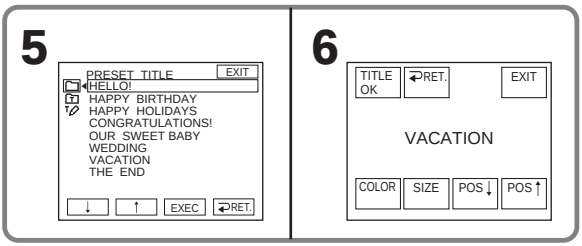
Superimposing a title on a cassette with Cassette Memory



A cassette can have up to about 20 titles, if a title consists of 5 characters.
However, if the Cassette Memory is full with date, photo data (DCR-TRV19 only) and cassette label data, the cassette can have only up to about 11 titles with 5 characters each.
Cassette Memory capacity is as follows:
– 6 date data (maximum)
– 1 cassette label (maximum)
– 12 photo data (maximum) (DCR-TRV19 only)

The POWER switch should be set to CAMERA or VCR .
Operate by touching the panel.

(1) Insert the cassette with Cassette Memory.
(2) During standby, recording, playback or playback pause, press FN to display PAGE1.
(3) Press MENU to display the menu.
(4) Select TITLE in , then press EXEC (p. 181).
(5) Select , then press EXEC.
(6) Select a desired title, then press EXEC. The title appears on the screen.
(7) If necessary, change the color, size, or position by pressing COLOR, SIZE, POS ↓ or POS ↑.
(8) Press TITLE OK.
(9) Press SAVE TITLE.
During playback, playback pause or recording:
The TITLE SAVE indicator appears on the screen for about 5 seconds and the title is set.
During recording standby:
The TITLE indicator appears. And when you press START/STOP to start recording, the TITLE SAVE indicator appears on the screen for about 5 seconds and the title is set.



To use the custom title
If you want to use the custom title, select [T] in step 5.

The titles superimposed with your camcorder
- They appear only by DV Mini DV format video equipment with index titler function.
- The point you superimposed the title may be detected as an index signal when searching a recording with other video equipment.

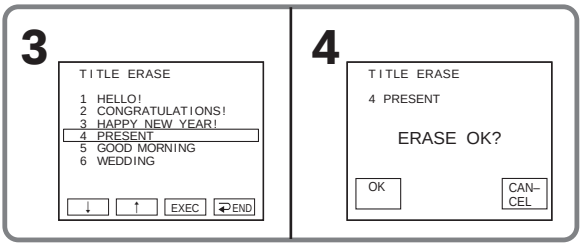
To not display title
Set TITLE DSPL in [CAM] to OFF in the menu settings (p. 181).

Title setting
- The title color changes as follows:
 WHITE → YELLOW → VIOLET → RED → CYAN → GREEN → BLUE
- The title size changes as follows:
 SMALL ↔ LARGE
 You cannot input 13 characters or more in LARGE size.
- The title position:
 If you select the title size SMALL, you have 9 choices for the title position.
 If you select the title size LARGE, you have 8 choices for the title position.

Erasing a title

The POWER switch should be set to (CAMERA) or (VCR) .
Operate by touching the panel.

(1) Press FN to display PAGE1.
(2) Press MENU to display the menu.
(3) Select TITLEERASE in [CAM], then press EXEC (p. 181). The TITLE ERASE screen appears.
(4) Select the title you want to erase, then press EXEC.
The ERASE OK? indicator appears.
(5) Make sure the title is the one you want to erase, then press OK.
The ERASING indicator flashes on the screen.
When the title is erased, the COMPLETE indicator appears.



To return to FN
Press EXIT.

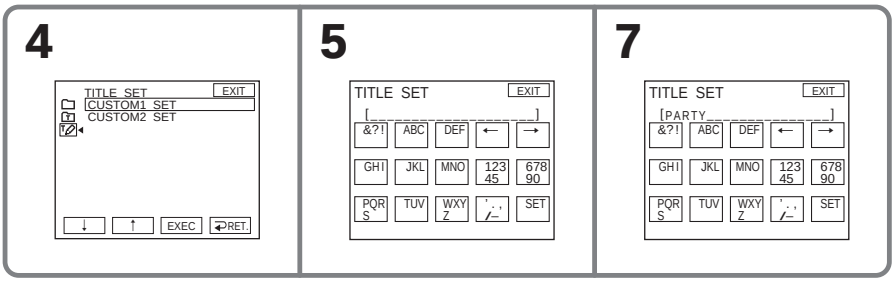
To cancel erasing
Press CANCEL in step 5.

Making your own titles

You can make up to 2 titles and store them in the memory of your camcorder. Each title can have up to 20 characters.

The POWER switch should be set to (CAMERA) or (VCR) .
Operate by touching the panel.

(1) Press FN to display PAGE1.
(2) Press MENU to display the menu.
(3) Select TITLE in [C/II], then press EXEC (p. 181).
(4) Select [T], then press EXEC.
(5) Select CUSTOM1 SET or CUSTOM2 SET, then press EXEC.
(6) Select a desired character. Repeat pressing a key to select a desired character on the key.
(7) Press → to move the cursor to select the next character. Repeat the same procedure as steps 6 and 7 to complete your title.
(8) Press SET. The title is stored in memory.



To return to FN

Press EXIT.

To change a title you have stored

In step 5, select CUSTOM1 SET or CUSTOM2 SET, depending on which title you want to change, then press EXEC and enter the new title.

If you take 5 minutes or longer to enter characters during tape recording standby with the cassette inserted in your camcorder

The power automatically goes off. The characters you have entered remain stored in memory. Set the POWER switch to OFF (CHG) once and then to CAMERA again, then start again from step 1.
We recommend setting the POWER switch to VCR or removing the cassette so that your camcorder does not automatically turn off while you are entering title characters.

To erase the character

Press ←. The last character is erased.

To enter a space

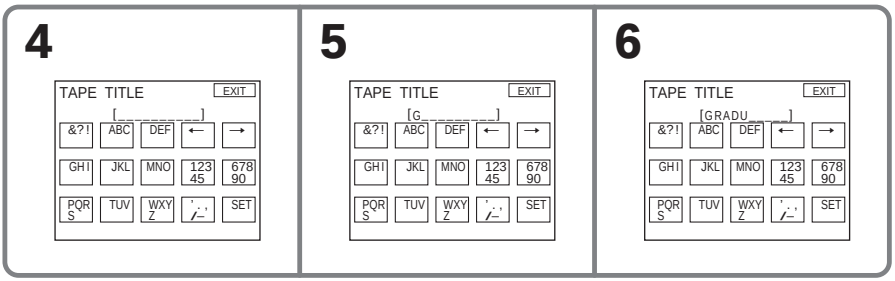
Press →.

Labeling a cassette on a cassette with Cassette Memory

The label can consist of up to 10 characters and is stored in Cassette Memory. When you insert the labeled cassette and set the POWER switch to CAMERA or VCR, the label is displayed for about 5 seconds.

The POWER switch should be set to CAMERA or VCR .
Operate by touching the panel.

(1) Insert the cassette with Cassette Memory you want to label.
(2) Press FN to display PAGE1.
(3) Press MENU to display the menu.
(4) Select TAPE TITLE in [CII], then press EXEC (p. 181).
(5) Select a desired character. Repeat pressing a key to select a desired character on the key.
(6) Press → to move the cursor to select the next character. Repeat the same procedure as steps 5 and 6 to complete the label.
(7) Press SET. The label is stored in memory.



To return to FN
Press EXIT.

To erase the label you have made
Erase the label by selecting ← in step 5, then press SET.

To change the label you have made
Insert the cassette to change the label, and operate in the same way to make a new label.

If you have superimposed titles in the cassette
When the label appears, up to 4 titles also appear.

To erase the character
Press ←. The last character is erased.

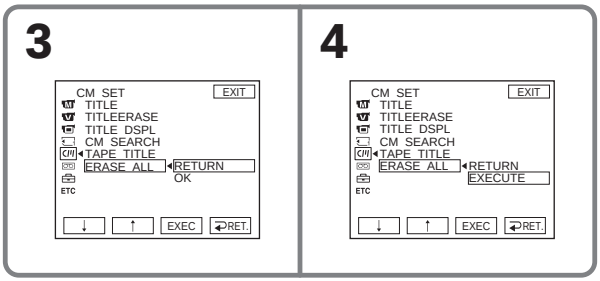
To enter a space
Press →.

Erasing all the data in Cassette Memory

The following data saved in Cassette Memory can be completely erased at once:
– Date data
– Title data
– Cassette label
– Photo data (DCR-TRV19 only)

The POWER switch should be set to CAMERA or VCR .
Operate by touching the panel.

(1) Press FN to display PAGE1.
(2) Press MENU to display the menu.
(3) Select ERASE ALL in CM, then press EXEC (p. 181).
(4) Select OK, then press EXEC.
The OK indicator changes to EXECUTE.
(5) Select EXECUTE, then press EXEC. The ERASING indicator flashes on the screen. Once erasing is complete, the COMPLETE indicator appears.



To return to FN

Press EXIT.

To cancel erasing

Select RETURN in step 5, then press EXEC.

Using "Memory Stick"

The "Memory Stick" is a new light and small recording media which, despite of the size, can store greater data than a floppy disk.
In addition to recording images and easily playing back images you want to see, the "Memory Stick" allows operations such as:
– Copying images into the "Memory Stick" from the tape
– Capturing images into the computer using the supplied USB cable
– Image deletion, protection and writing (with a print mark).

File format

Still image (JPEG)

Your camcorder compresses and records image data in JPEG (Joint Photographic Experts Group) format. The file extension is .jpg.
Exif * Ver.2.2 JPEG compliant, DPOF compatible

* Exif: Exif is a file format for still images, established by the Japan Electronics and Information Technology Industries Association (JEITA). Files in this format can have additional information such as your camcorder's setting information at the time of recording.

Moving picture (MPEG)

Your camcorder compresses and records picture data in MPEG (Moving Picture Experts Group) format. The file extension is .mpg.

Typical image data file name

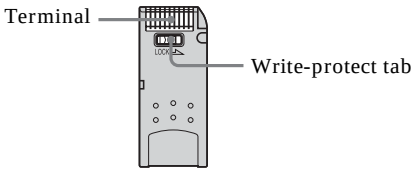
Still image
101-0001: This file name appears on the screen of your camcorder.
DSC00001.JPG: This file name appears on the display of a computer.

Moving picture
MOV00001: This file name appears on the screen of your camcorder.
MOV00001.MPG: This file name appears on the display of a computer.

To prevent from erasing images accidentally

Rear part of the "Memory Stick"

Slide the write-protect tab on the "Memory Stick" to LOCK.
The position and shape of the write-protect tab may be different depending on the model.



Notes on the "Memory Stick"

Labeling position

Stick its label on the labeling position.

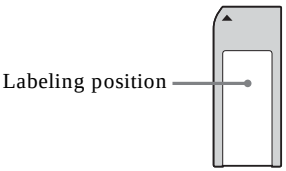


Image data may be damaged in the following cases. (Damaged image data will not be compensated.)

– You eject the “Memory Stick” or turn the power off when the data is being recorded or the image file is being read in the “Memory Stick” (the access lamp is flashing or lights up).
– You use the “Memory Stick” near magnets or magnetic fields such as those of speakers and TV.

We recommend backing up important data on the hard disk of a computer.

On handling

• When you carry or store the “Memory Stick,” put it in its case.
• Prevent metallic objects or your finger from coming into contact with the metal parts of the connecting section.
• Do not bend, drop or apply strong shock to the “Memory Stick.”
• Do not disassemble or modify the “Memory Stick.”
• Do not let the “Memory Stick” get wet.

On location for use

Do not use or keep the “Memory Stick” in locations that are:
– Extremely hot such as in a car parked in the sun or under the scorching sun
– Under direct sunlight
– Very humid or subject to corrosive gases

The “Memory Stick” formatted by a computer

The “Memory Stick” formatted by Windows OS or Macintosh computers does not have a guaranteed compatibility with your camcorder.

Notes on “MagicGate Memory Stick”

You can use the “MagicGate Memory Stick” for recording image data on your camcorder. However, you cannot record or play back the music protected by copyright on your camcorder.

Notes on using the “Memory Stick Duo”

• Make sure to insert the “Memory Stick Duo” into the “Memory Stick Duo” Adaptor when using the “Memory Stick Duo” with your camcorder.
• Insert the “Memory Stick Duo” in the correct direction. Inserting it in the wrong direction may cause a malfunction of your camcorder.
• Do not insert the “Memory Stick Duo” into a “Memory Stick” compatible unit without inserting it into the “Memory Stick Duo” Adaptor first. Doing so may cause a malfunction of the unit.

Notes on image data compatibility

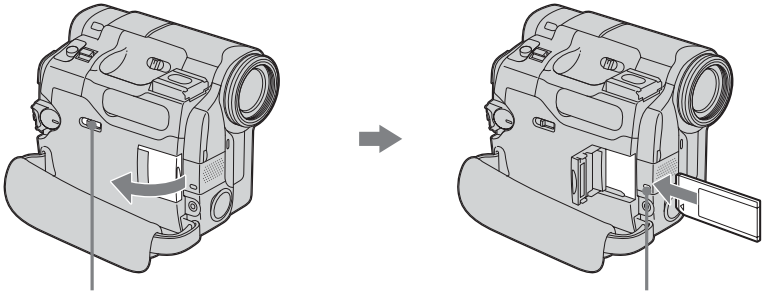
- Image data files recorded on the “Memory Stick” by your camcorder conform with the Design Rules for Camera File Systems universal standard established by the JEITA (Japan Electronics and Information Technology Industries Association).
 On your camcorder, you cannot play back still images recorded on other equipment (DCR-TRV890E / TRV900 / TRV900E or DSC-D700 / D770) that does not conform to this universal standard. (These models are not sold in some areas.)
- If you cannot use the “Memory Stick” that is used with other equipment, format it with your camcorder (p. 180). Note that formatting erases all information on the “Memory Stick.”
- You may not be able to play back the images recorded using your camcorder, on other playback equipment.
- You may not be able to play back following images with your camcorder:
 – image data modified on a computer
 – image data shot with other equipment

- The “Memory Stick,” MEMORY STICK ™ and “MagicGate Memory Stick” are trademarks of Sony Corporation.
- “Memory Stick Duo” and MEMORY STICK DUO are trademarks of Sony Corporation.
- “MagicGate” and MAGICGATE are trademarks of Sony Corporation.
- All other product names mentioned herein may be the trademarks or registered trademarks of their respective companies.
 Furthermore, “™” and “®” are not mentioned in each case in this manual.

Inserting/Ejecting the “Memory Stick”

Inserting the “Memory Stick”

Open the lid of the “Memory Stick” slot. Insert the “Memory Stick” in the “Memory Stick” slot as far as it can go with the ◀ mark as illustrated, then close the lid.



Ejecting the “Memory Stick”

Open the lid of the “Memory Stick” slot. Slide MEMORY EJECT in the direction of the arrow.

Notes

- If you insert the “Memory Stick” forcibly in the opposite direction, the “Memory Stick” slot may be damaged.
- Do not insert anything other than the “Memory Stick” into the “Memory Stick” slot. This may cause a malfunction.

While the access lamp is lit or flashing

Do not shake or strike your camcorder because your camcorder is reading the data from the “Memory Stick” or recording the data on the “Memory Stick.” Do not turn the power off, eject the “Memory Stick” or remove the battery pack. Otherwise, image data breakdown may occur.

If “ MEMORY STICK ERROR” appears

Reinsert the “Memory Stick” a few times. The “Memory Stick” may be damaged if the indicator still appears. If this occurs, use another “Memory Stick.”

Selecting image quality and size

Selecting still image quality

The default setting is FINE.

The POWER switch should be set to (MEMORY) or (VCR).
Operate by touching the panel.

(1) Press FN to display PAGE1.
(2) Press MENU to display the menu.
(3) Select STILL SET in , then press EXEC (p. 179).
(4) Select QUALITY, then press EXEC.
(5) Select a desired image quality, then press EXEC.

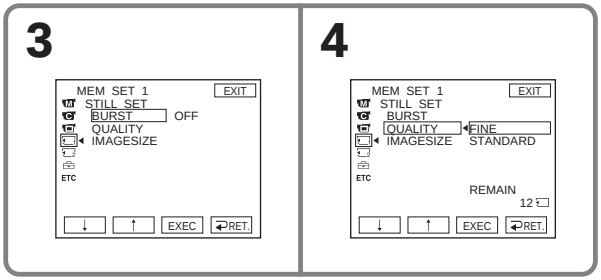


Image quality settings

Setting	Meaning
FINE (FINE)	Use this mode when you want to record high quality images. Fine images are compressed to about 1/4.
STANDARD (STD)	This is the standard image quality. Standard images are compressed to about 1/10.

To return to FN

Press EXIT.

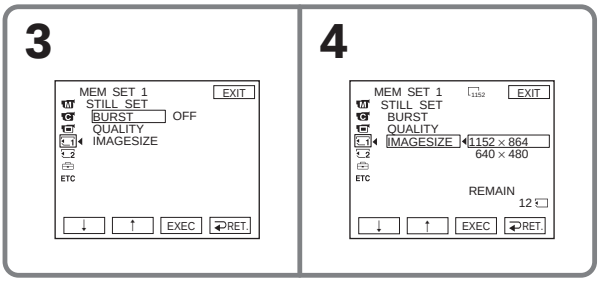
Selecting the still image size (DCR-TRV33 only)

You can select image size 1152 × 864 or 640 × 480 (When the POWER switch is set to CAMERA or VCR, the image size is automatically set to 640 × 480.)
The default setting is 1152 × 864.

The POWER switch should be set to (MEMORY).
Operate by touching the panel.

(1) Press FN to display PAGE1.
(2) Press MENU to display the menu.
(3) Select STILL SET in , then press EXEC (p. 179).
(4) Select IMAGESIZE, then press EXEC.
(5) Select a desired image size, then press EXEC.
The indicator changes as follows:

1152 ↔ 640



Memory capacity of still images

Recorded images are compressed in JPEG format before being stored in memory. The memory capacity of still images varies depending on the selected image quality mode and image size. Details are shown in the table below.

1152 × 864 image size (DCR-TRV33 only)

Image quality	Memory capacity
FINE	About 500 KB
STANDARD	About 200 KB

640 × 480 image size

Image quality	Memory capacity
FINE	About 150 KB
STANDARD	About 60 KB

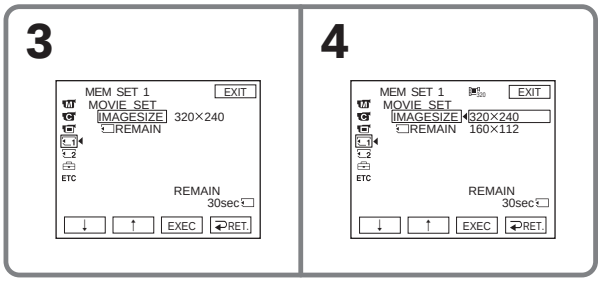
Selecting the moving picture size

You can select picture size 320 × 240 or 160 × 112.
The default setting is 320 × 240.

The POWER switch should be set to (MEMORY) or (VCR).
Operate by touching the panel.

(1) Press FN to display PAGE1.
(2) Press MENU to display the menu.
(3) Select MOVIE SET in [cam], then press EXEC (p. 179).
(4) Select IMAGESIZE, then press EXEC.
(5) Select a desired image size, then press EXEC.
The indicator changes as follows:

320 ⟷ 160



To return to FN

Press EXIT.

Approximate number of still images and time of moving pictures that can be recorded on one "Memory Stick"

The number of still images and the time of moving pictures you can record vary depending on which image quality mode you select and the complexity of the subject.

Still images

(unit: image)

Type of "Memory Stick"	FINE		STANDARD	
	1152 × 864* 	640 × 480 	1152 × 864* 	640 × 480 
8MB (supplied)	15	50	37	120
16MB (optional)	30	96	74	240
32MB (optional)	61	190	150	485
64MB (optional)	120	390	300	980
128MB (optional)	245	780	600	1970

* DCR-TRV33 only

Moving pictures

Type of "Memory Stick"	Image size	
	320 × 240 	160 × 112 
8MB (supplied)	1 min. 20 sec.	5 min. 20 sec.
16MB (optional)	2 min. 40 sec.	10 min. 40 sec.
32MB (optional)	5 min. 20 sec.	21 min. 20 sec.
64MB (optional)	10 min. 40 sec.	42 min. 40 sec.
128MB (optional)	21 min. 20 sec.	1 hr. 25 min. 20 sec.

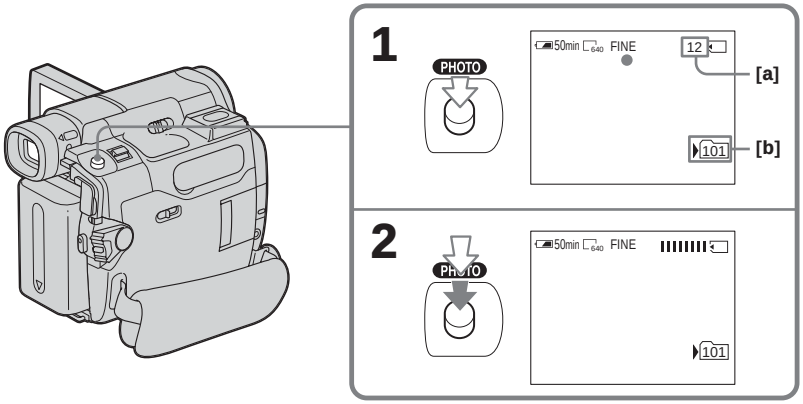
The table shows approximate number of still images and time of moving pictures that can be recorded on the "Memory Stick" formatted with your camcorder.

Recording still images on “Memory Stick” – Memory Photo recording

The POWER switch should be set to (MEMORY).

(1) Keep pressing PHOTO lightly and check the image. The green ● indicator stops flashing, then lights up. The brightness of the image and the focus are adjusted and fixed while your camcorder targets at the center of the image. Recording does not start yet.

(2) Press PHOTO deeply.
Recording is complete when the bar scroll indicator disappears.
The image displayed on the screen when you pressed PHOTO deeply will be recorded on the “Memory Stick.”



[a] Approximate number of images that can be recorded on the “Memory Stick”
[b] Folder name to be recorded in

Note

The recordable number of the images indicated on the screen depends on the setting of the image quality and the condition of the subject being recorded. Therefore, the recordable number may not change even after recording has been done.

You can record still images on the “Memory Stick” during tape recording or tape recording standby

See page 46 for details.

When the POWER switch is set to MEMORY

The following functions do not work:
– Digital zoom
– Super NightShot
– Color Slow Shutter
– Wide mode
– Fader
– Picture effect
– Digital effect
– SPORTS of PROGRAM AE (The indicator flashes.)
– Title
– SteadyShot

While you are recording a still image

You cannot turn off the power or press PHOTO.

When you press PHOTO on the Remote Commander

Your camcorder immediately records the image that is on the screen when you press the button.

When you press PHOTO lightly in step 1

The image momentarily flickers. This is not a malfunction.

Recording data

The recording data (date/time or various settings when recorded) do not appear during recording. However, they are recorded automatically onto the "Memory Stick." To display the recording data, press DATA CODE during playback. You can also use the Remote Commander for this operation (p. 40).

If you record still images when the POWER switch is set to MEMORY (DCR-TRV33 only)

The angle of view is slightly larger compared with the angle of view when the POWER switch is set to CAMERA.

Recording images continuously (DCR-TRV33 only)

You can record still images continuously. Before recording, select a desired mode described below in the menu settings.

NORMAL [a] ()
Your camcorder shoots up to 4 still images in 1152 × 864 size or 13 still images in 640 × 480 size at about 0.5 sec intervals.

EXP BRKTG [b] ()
Your camcorder automatically shoots 3 images at about 0.5 sec intervals at different exposures.

[a]

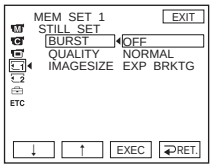


[b]



The POWER switch should be set to MEMORY.
Operate by touching the panel.

(1) Press FN to display PAGE1.
(2) Press MENU to display the menu.
(3) Select STILL SET in , then press EXEC (p. 179).
(4) Select BURST, then press EXEC.



(5) Select a desired mode, then press EXEC.
(6) Press EXIT to make the menu display disappear.
(7) Press PHOTO deeply.

The number of still images in continuous shooting
The number of still images you can shoot continuously varies depending on the image size and the capacity of the “Memory Stick.”

During continuous recording of images
The flash (optional) does not work.

When shooting with the self-timer or the Remote Commander
Your camcorder automatically records up to the maximum number of still images.

If remaining capacity on the “Memory Stick” is less than for 3 images
EXP BRKTG does not work. “ FULL” appears when you press PHOTO.

The effect of EXP BRKTG
The effect of EXP BRKTG may not be noticeable on the screen.
We recommend viewing images on TV or the computer to recognize the effect.

When selecting NORMAL
Recording continues up to the maximum number of still images during pressing PHOTO deeply.

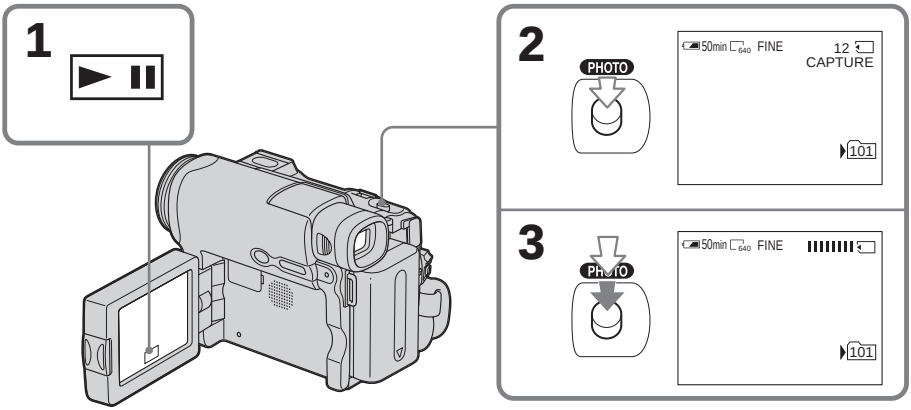
Recording an image from tape as a still image

Image size is automatically set to 640 × 480.

Before operation
Insert the "Memory Stick" and the recorded tape into your camcorder.

The POWER switch should be set to (VCR).
Operate by touching the panel.

(1) Press ►II. The picture recorded on the tape is played back.
(2) Keep pressing PHOTO lightly and check the image. The picture from the tape freezes and the CAPTURE indicator appears on the screen. Recording does not start yet.
To change the still image, release PHOTO, select a still image again, and then press and hold PHOTO lightly.
(3) Press PHOTO deeply. Recording is complete when the bar scroll indicator disappears. The image displayed on the screen when you pressed PHOTO deeply will be recorded on the "Memory Stick."



Sound recorded on the tape
You cannot record audio from the tape.

Title
You cannot record the titles.

Recording date/time
The date/time when it is recorded on the "Memory Stick" is recorded. Various settings are not recorded.

When you press PHOTO on the Remote Commander
Your camcorder immediately records the image that is on the screen when you press the button.

Recording a still image from other equipment

You can use either A/V connecting cable or i.LINK cable. See page 93 for the connection.
When connecting with the A/V connecting cable, set DISPLAY in ETC to LCD in the menu settings. (The default setting is LCD.)

The POWER switch should be set to (VCR).
Operate by touching the panel.

(1) Play back the recorded tape on the VCR, or turn the TV on to see a desired program.
(2) At the point where you want to record, follow steps 2 and 3 on page 118.

Note

If the tape is in poor condition due to being used repeatedly for dubbing and so on, your camcorder may not be able to record the image, or the recorded image may appear jagged.

Superimposing a still image in “Memory Stick” on an image – MEMORY MIX

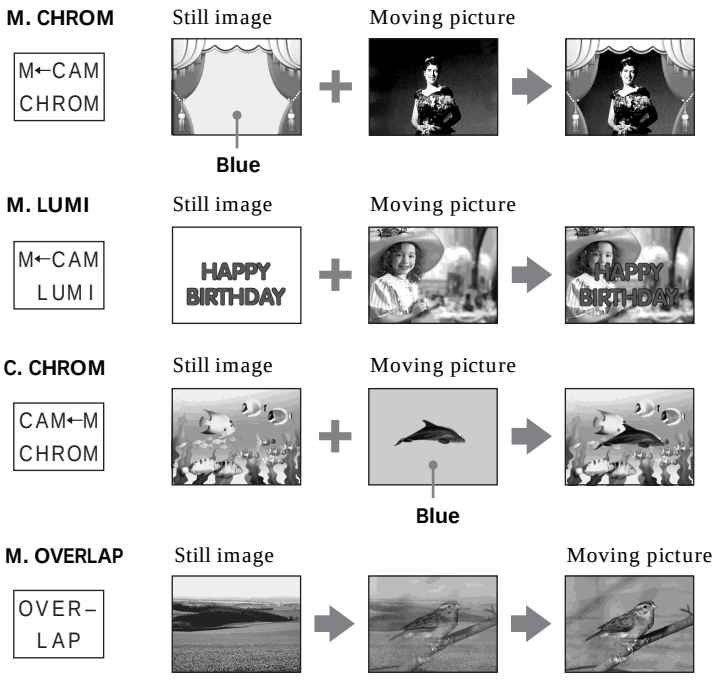
You can superimpose a still image you have recorded on the “Memory Stick” on top of the moving picture you are recording. (You cannot superimpose a still image on an image which has already been recorded.)
You can record superimposed images on the tape or the “Memory Stick.” (However, you can record only superimposed still images on the “Memory Stick.”)

M. CHROM (Memory Chromakey)
You can swap only the blue area of a still image such as an illustration or a frame with a moving picture.

M. LUMI (Memory Luminancekey)
You can swap the brighter area of a still image (such as a handwritten illustration or a title) with a moving picture. To use this function, we recommend recording a title on the “Memory Stick” before a trip or event.

C. CHROM (Camera Chromakey)
You can superimpose a moving picture on top of a still image such as an image which can be used as background. Shoot the subject against a blue background. Only the blue area of the moving picture will be swapped with a still image.

M. OVERLAP (Memory Overlap)
You can make a moving picture you are recording with your camcorder fade in on top of a still image recorded on the “Memory Stick.” You can use Memory Overlap only when the POWER switch is set to CAMERA.



The "Memory Stick" supplied with your camcorder stores 20 images:
– For M. CHROM: 18 images (such as a frame) 101-0001~101-0018
– For C. CHROM: 2 images (such as a background) 101-0019~101-0020

Sample images
Sample images stored in the "Memory Stick" supplied with your camcorder are protected (p. 142).

Notes
- You cannot use MEMORY MIX for moving pictures recorded on the "Memory Stick."
- When the overlapping still image has a large amount of white, the thumbnail image of the picture may not be clear.
- When recording in the mirror mode (p. 29), the image on the LCD screen does not appear as a mirror-image.

Image data modified on a computer
You may not be able to play back modified images with your camcorder.

Recording a superimposed image to the tape

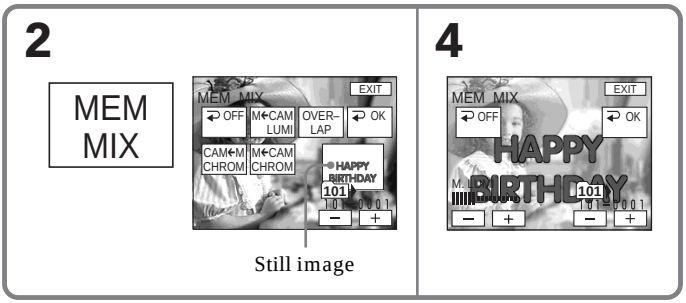
Before operation
- Insert the "Memory Stick" containing the still images into your camcorder.
- Insert the tape for recording into your camcorder.

The POWER switch should be set to CAMERA.
Operate by touching the panel.

(1) Press FN and select PAGE2 .
(2) Press MEM MIX. The image recorded on the "Memory Stick" appears in the lower right corner of the screen.
(3) Press – (to see the previous image) / + (to see the next image) in the lower right corner of the screen to select the still image that you want to superimpose.
(4) Press a desired mode. The still image is superimposed on the moving picture during recording standby.
(5) Press – / + in the lower left corner of the screen to adjust the effect, then press ↩ OK to return to PAGE2.

M. CHROM – The color (blue) scheme of the area in the still image which is to be swapped with a moving picture
M. LUMI – The color (bright) scheme of the area in the still image which is to be swapped with a moving picture
C. CHROM – The color (blue) scheme of the area in the moving picture which is to be swapped with a still image
M. OVERLAP – No adjustment necessary (You can select M. OVERLAP only when the POWER switch is set to CAMERA.)

(6) Press EXIT to return to FN.
(7) Press START / STOP to start recording.



To change the still image to be superimposed

Press –/+ in the lower right corner before step 5.

To cancel MEMORY MIX

Press ↩ OFF to return to PAGE2.

Note

During recording you cannot reselect the mode.

To record still image as they appear on the tape

Select M. LUMI, then press –/+ in the lower left corner of the screen so that the right end of the bar is visible.

When you select M. OVERLAP

You cannot change the still image. First press ↩ OFF to cancel M. OVERLAP and then select the image again.

Recording a superimposed image to the "Memory Stick" as a still image

Before operation
Insert the "Memory Stick" containing the still images into your camcorder.

The POWER switch should be set to (MEMORY).
Operate by touching the panel.

(1) Follow the step 1 to 6 on page 121.
(2) Press PHOTO deeply to start recording.
Recording is complete when the bar scroll indicator disappears. The image displayed on the screen when you pressed PHOTO deeply will be recorded on the "Memory Stick."

To cancel MEMORY MIX

Press ↩ OFF to return to PAGE2.

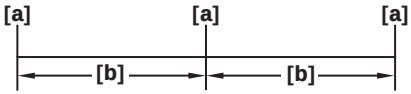
Image size of still images
Image size is automatically set to 640 × 480.

To record still image as they appear on the tape
Select M. LUMI, then press –/+ in the lower left corner of the screen so that the right end of the bar is visible.

Interval Photo Recording

You can carry out a time-lapse recording by setting the camcorder to automatically record still images.

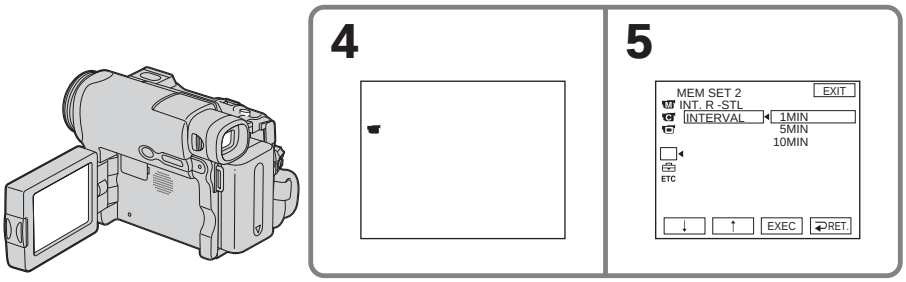
Example



[a] Memory Photo recording
[b] INTERVAL

The POWER switch should be set to (MEMORY).
Operate by touching the panel.

(1) Press FN to display PAGE1.
(2) Press MENU to display the menu.
(3) Select INT. R -STL in , then press EXEC (p. 180).
(4) Select SET, then press EXEC.
(5) Select INTERVAL, then press EXEC.
(6) Select a desired interval time, then press EXEC.
(7) Press ⮐ RET.
(8) Set INT. R -STL to ON, then press EXEC.
(9) Press EXIT to return to FN.
The INTERVAL MEM STILL indicator flashes on the screen.
(10) Press PHOTO deeply.
Interval Photo Recording starts.
The INTERVAL MEM STILL indicator lights up on the screen during Interval Photo Recording.



To cancel Interval Photo Recording

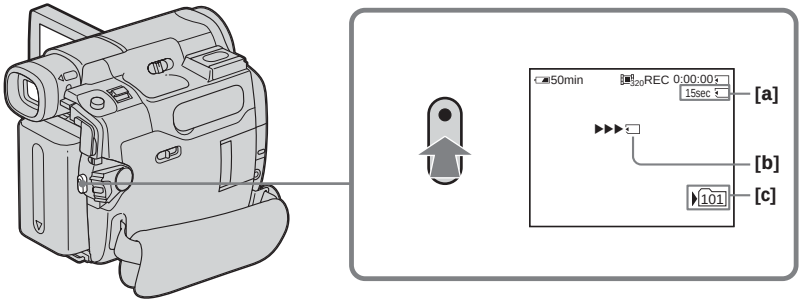
Set INT. R -STL to OFF in the menu settings.

Recording moving pictures on “Memory Stick” – MPEG MOVIE recording

The picture and sound are recorded up to the full capacity of the “Memory Stick” (MPEG MOVIE EX).

The POWER switch should be set to (MEMORY).

Press START/STOP.
Your camcorder starts recording. The camera recording lamp located on the front of your camcorder lights up.
The picture and sound are recorded up to the capacity of the “Memory Stick.” See page 113 for details of recording time.



[a] Available recording time on the “Memory Stick”
[b] This indicator appears for 5 seconds after pressing START/STOP. This indicator is not recorded.
[c] Folder name to be recorded in

To stop recording

Press START/STOP.

Note

Sound is recorded in monaural.

When the POWER switch is set to MEMORY

The following functions do not work:
– Digital zoom
– Super NightShot
– Color Slow Shutter
– Wide mode
– Fader
– Picture effect
– Digital effect
– SPORTS of PROGRAM AE (The indicator flashes.)
– Title
– SteadyShot

When using an external flash (optional)

Turn the power of the external flash off when recording moving pictures on the "Memory Stick." Otherwise, the charging sound of the flash may be recorded.

Recording date/time

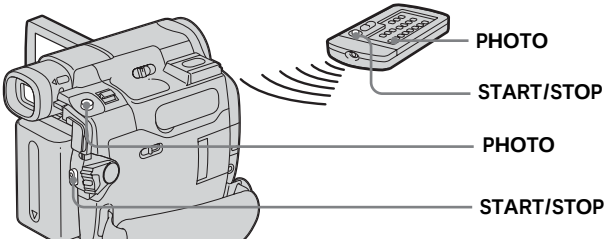
The date/time do not appear during recording. However, they are automatically recorded onto the "Memory Stick." To display the recording date/time, press DATA CODE during playback. Various settings cannot be recorded (p. 40).

Self-timer recording

You can record moving pictures on the "Memory Stick" with the self-timer. See page 127 for details.

Self-timer recording

You can record still images and moving pictures on the “Memory Stick” with the self-timer. You can also use the Remote Commander for this operation.



Recording a still image

The POWER switch should be set to (MEMORY).
Operate by touching the panel.

(1) Press FN and select PAGE3.
(2) Press SELFTIMER.
The ⏲ (self-timer) indicator appears on the screen.
(3) Press EXIT to return to FN.
(4) Press PHOTO deeply.
The self-timer starts counting down from about 10 with a beep. In the last 2 seconds of the countdown, the beep gets faster, then recording starts automatically.

Recording a moving picture

The POWER switch should be set to (MEMORY).
Operate by touching the panel.

(1) Follow steps 1 to 3 in “Recording a still image.”
(2) Press START/STOP.
The self-timer starts counting down from about 10 with a beep. In the last 2 seconds of the countdown, the beep gets faster, then recording starts automatically.

To stop the countdown for recording moving picture

Press START/STOP. To restart the countdown, press START/STOP again.

To cancel the self-timer

During standby, press SELFTIMER and the ⏲ (self-timer) indicator disappears from the screen. You cannot cancel the self-timer using the Remote Commander.

Notes

- The self-timer recording is automatically canceled when self-timer recording is finished.
- You cannot stop the countdown for self-timer recording of the still images.

When the POWER switch is set to CAMERA

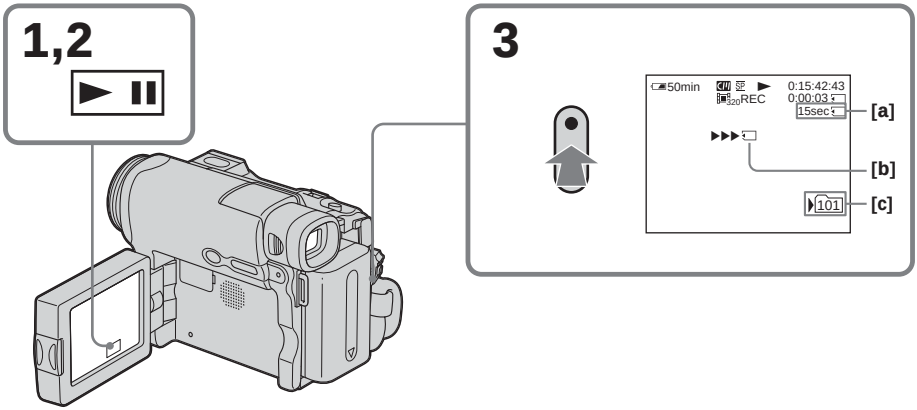
You can also perform self-timer recording (p. 50).

Recording a picture from tape as a moving picture

Before operation
Insert the recorded cassette and "Memory Stick" into your camcorder.

The POWER switch should be set to (VCR).
Operate by touching the panel.

(1) Press ►II. The picture recorded on the tape is played back.
(2) Press ►II again to pause playback at the scene where you want to start recording from.
(3) Press START/STOP. Images and sound are recorded up to the remaining capacity of the "Memory Stick." See page 113 for details on recording time.



[a] Available recording time on the "Memory Stick"
[b] This indicator appears for 5 seconds after pressing START/STOP. This indicator is not recorded.
[c] Folder name to be recorded in

To stop recording

Press START/STOP.

Notes

- Sound recorded in 48 kHz is converted to one in 32 kHz when recording images from the tape to the "Memory Stick."
- Sound recorded in stereo is converted to monaural sound when recording from the tape.

Titles

You cannot record the titles.

If the "AUDIO ERROR" indicator appears

Sound that cannot be recorded by your camcorder has been recorded. Connect the A/V connecting cable to input images played back on an external device (p. 93).

Data code recorded on the tape

Instead of the date/time when the picture was recorded on the tape, the date/time when the picture is recorded on the "Memory Stick" (transferred from the tape) is recorded on the "Memory Stick." The various settings that may be saved on the tape are not recorded.

Recording a moving picture from other equipment

You can use either A/V connecting cable or i.LINK cable. See page 93 for the connection.
When connecting with the A/V connecting cable, set DISPLAY in ETC to LCD in the menu settings. (The default setting is LCD.)

The POWER switch should be set to (VCR).

(1) Play back the recorded tape on the VCR, or turn the TV on to see a desired program.
The image of the other equipment is displayed on the LCD screen or in the viewfinder.

(2) At the starting point of the picture you want to record, press START/STOP.

Note

Recording may stop or the recorded picture may distorted when:
–There are blank portions on the tape.
– The tape on which the image you want to use was recorded, is in poor condition. For example, if the tape has been repeatedly used for dubbing.
– The input signal is cut off during recording.

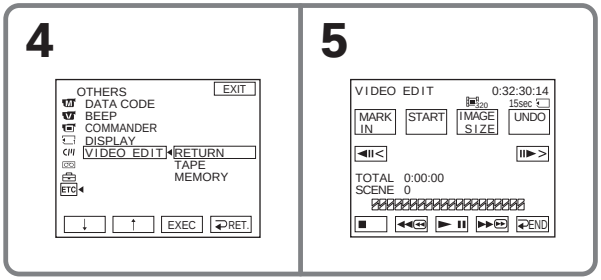
Recording edited pictures from tape as a moving picture – Digital program editing (on “Memory Stick”)

You can duplicate selected scenes (programs) for editing onto the “Memory Stick.”

Making the program

The POWER switch should be set to (VCR).
Operate by touching the panel.

(1) Insert the tape for playback, and the “Memory Stick” for recording into your camcorder.
(2) Press FN to display PAGE1.
(3) Press MENU to display the menu.
(4) Select VIDEO EDIT in ETC, then press EXEC (p. 185).
(5) Select MEMORY, then press EXEC.
(6) Repeat pressing IMAGESIZE to select a desired size. The image size changes when you press IMAGESIZE.
(7) Follow steps 6 to 10 on page 90.



To finish making programs

Press ⮌ END.
The program is stored in memory until the tape is ejected.

Notes

- You cannot dub the titles, display indicators, or the contents of Cassette Memory.
- You cannot operate recording during the Digital program editing on the “Memory Stick.”

On a blank portion of the tape

You cannot set IN or OUT on a blank portion of the tape.

If there is a blank portion between IN and OUT on the tape

The total time may not appear correctly.

During making a program

If you eject the cassette, the NOT READY indicator appears on the screen. The program will be erased.

Erasing the program you have set

(1) Perform steps 2 to 6 on page 130.
(2) Perform steps 2 to 4 on page 91.

Erasing all programs

(1) Perform steps 2 to 6 on page 130.
(2) Perform steps 2 to 4 on page 91.

Performing the program (Dubbing the “Memory Stick”)

(1) Press FN to display PAGE1.
(2) Press MENU to display the menu.
(3) Select VIDEO EDIT in ETC, then press EXEC (p. 185).
(4) Select MEMORY, then press EXEC.
(5) Press START.
(6) Press EXEC.
Your camcorder searches for the beginning of the first program, then starts dubbing.
The program mark flashes.
The SEARCH indicator appears during searching, the EDITING indicator appears during writing of data on your camcorder, and the REC indicator appears during dubbing on the screen.
When the dubbing ends, your camcorder automatically stops.

To stop dubbing

Press CANCEL.
The program you made is recorded on the “Memory Stick” up to the place where you pressed CANCEL.

To end Digital program editing

Your camcorder stops when the dubbing ends. Then the display returns to VIDEO EDIT in the menu settings.
Press ↩ END to end Digital program editing.

Note

Your camcorder may stop recording the image, or the recorded image may appear jagged:
– If the tape has the blank portion.
– If the tape is in poor condition due to being used repeatedly for dubbing.

The NOT READY indicator appears on the screen when:

– The program to operate Digital program editing has not been made.
– The “Memory Stick” is not inserted.
– The write-protect tab on the “Memory Stick” is set to LOCK.

When the available recording time of the “Memory Stick” is not enough

The LOW MEMORY indicator appears on the screen. However, you can record pictures up to the time indicated.

When the program has not been set

You cannot press START.

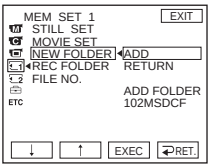
Changing the recording folder

You can create plural folders in a “Memory Stick.” This feature is convenient for sorting out the images when you record.
The default recording folder is “101MSDCF.” You can create folders up to “999MSDCF” in the “Memory Stick.”

Creating a new folder

The POWER switch should be set to (MEMORY).
Operate by touching the panel.

(1) Press FN to display PAGE1.
(2) Press MENU to display the menu.
(3) Select NEW FOLDER in , then press EXEC (p. 179).



(4) Select ADD, then press EXEC. A folder with the maximum number+1 will be created. A created folder is automatically set to the folder to record in.

To return to FN

Press EXIT.

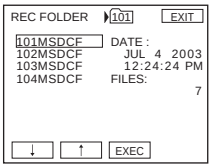
To cancel creating a new folder

Select RETURN in step 4, then press EXEC.

Selecting the recording folder

The POWER switch should be set to (MEMORY) .
Operate by touching the panel.

(1) Press FN to display PAGE1.
(2) Press MENU to display the menu.
(3) Select REC FOLDER in , then press EXEC (p. 179).



(4) Press ↓/↑ to select a folder you want to record in, then press EXEC.

To return to FN

Press EXIT.

Notes

- Up to 9999 image files can be recorded in each folder. When a folder is full, a new folder is automatically created.
- Once a folder is created, it cannot be deleted with your camcorder.
- As the number of folders increases, the number of recordable images in the “Memory Stick” decreases.

Viewing a still image – Memory Photo playback

You can view the still images recorded in the "Memory Stick." Further, you can view 6 images including moving pictures at a time arranged in the same order of recording in the "Memory Stick" by selecting the index screen.

The POWER switch should be set to (MEMORY).
Operate by touching the panel.

(1) Press PLAY. The last recorded image is displayed.
(2) Press – (to see the previous image) / + (to see the next image) on your camcorder to select a desired still image.

To cancel Memory Photo playback

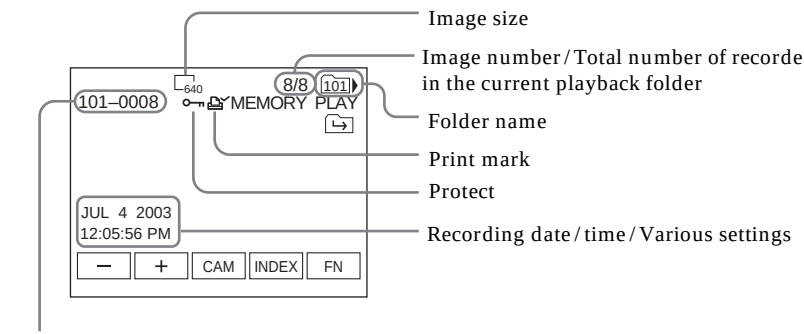
Press CAM.

When no file is in the folder

The "NO FILE AVAILABLE" indicator appears.

Screen indicators during still image playback

To make screen indicators disappear, press DSPL / BATT INFO.



Recording data

To display the recording data (date / time or various settings when recorded), press DATA CODE during playback. You can also use the Remote Commander for this operation (p. 40).

Notes on the file name

- The folder number may not appear and only the file name may appear if the folder structure does not conform to the DCF standard.
- The file name flashes on the screen if the file is corrupted or the file is unreadable.

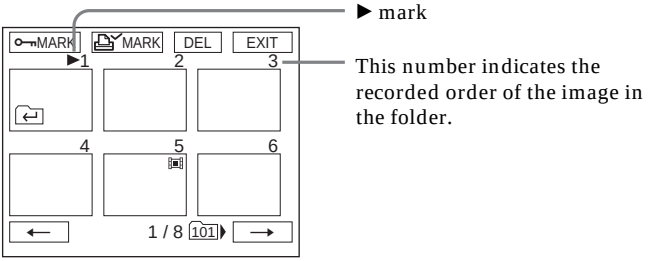
When the "Memory Stick" contains multiple folders

The following icons appear on the screen on the first or last images in a folder.
: You can move to the previous folder.
: You can move to the next folder.
: You can move to both the previous and the next folders.

Playing back 6 recorded images at a time (index screen)

This function is especially useful when searching for a particular image.

Press INDEX to display the index screen.
A red ▶ mark appears above the image that was being displayed before the change to the index screen mode.
←: To display the previous 6 images
→: To display the next 6 images



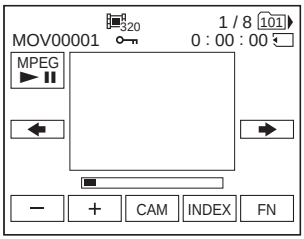
To return to FN
Press EXIT.

To return to the normal playback screen (single screen)
Press the image you want to display.

You can view the moving pictures recorded in the “Memory Sitck.”

The POWER switch should be set to MEMORY

(2) Press ← (to see previous part) / → (to see next part) to select the point where you want to play back.



(3) Follow steps 3 and 4 on page 137.

To cancel MPEG MOVIE playback

Press MPEG ► II.

When recording time is too short

The moving picture may not be divided into parts.

Screen indicators during moving picture playback

To make screen indicators appear or disappear, press DSPL / BATT INFO.

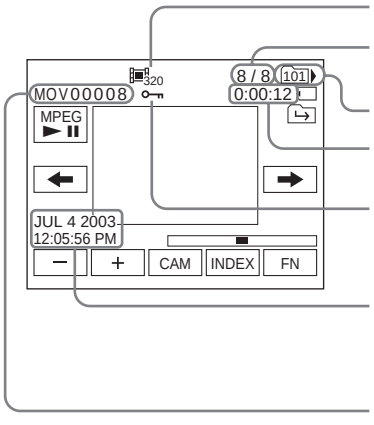


Image size

Picture number / Total number of recorded pictures in the current playback folder

Folder name

Memory playback time

Protect

Recording date / time (Various settings appear as "– – –".)

Data file name

Recording date/time

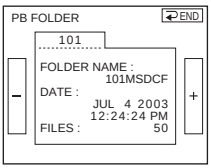
To display the recording date / time, press DATA CODE during playback. You can also use the Remote Commander for this operation (p. 40).

Choosing a playback folder

Select the folder to be played back. The currently selected folder name appears at the top right of the screen.

The POWER switch should be set to (MEMORY).
Operate by touching the panel.

(1) Press FN to display to PAGE1.
(2) Press PB FOLDR.
(3) Press –/+ to select the folder number you want to play back, then press ↩ END to return to PAGE1.



– : To select the previous folder
+ : To select the next folder

To return to FN

Press EXIT.

Note

Your camcorder does not recognize folder names created or changed using the computer.

Current playback folder

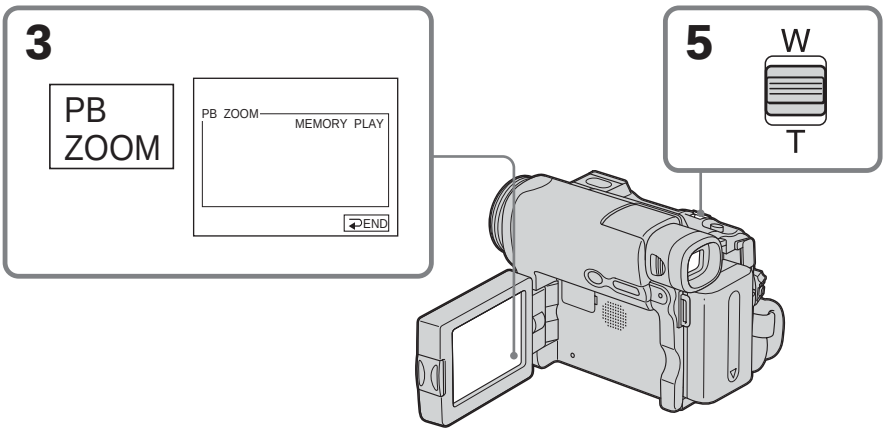
The current playback folder is valid until the next recording is made. Once you record an image, the current recording folder becomes the current playback folder.

Enlarging still images recorded on “Memory Stick” – Memory PB ZOOM

You can enlarge the still images to be played back, and record the enlarged images on the “Memory Stick” (DCR-TRV33 only).
Image size is automatically set to 640 × 480.

The POWER switch should be set to (MEMORY).
Operate by touching the panel.

(1) Play back the image to enlarge.
(2) Press FN and select PAGE2.
(3) Press PB ZOOM. The PB ZOOM screen appears.
(4) Press the area you want to enlarge in the frame.
The area you pressed moves to the center of the screen, and the playback image is enlarged to about twice the size. If you press the other area again, the area moves to the center of the screen.
(5) Adjust the zoom ratio by the zoom lever.
You can select the image from approximately 1.1 times up to 5 times its size.
W: Decrease the zoom ratio.
T: Increase the zoom ratio.



To cancel memory PB ZOOM

Press ⮌ END.

In memory PB ZOOM

If you press DSPL/BATT INFO, the frame on the memory PB ZOOM screen disappears. You cannot move the part you pressed to the center of the screen.

Edge of an enlarged image

The edge of an enlarged image cannot be displayed at the center of the screen.

Moving pictures recorded on the “Memory Stick”

Memory PB ZOOM does not work.

To record the images processed by Memory PB ZOOM on the “Memory Stick” (DCR-TRV33 only)

Press PHOTO when the image is being displayed. The image size automatically becomes 640 × 480.

You can display all images on the “Memory Stick” or in the selected folder in sequence (slide show).

The POWER switch should be set to (MEMORY).
Operate by touching the panel.

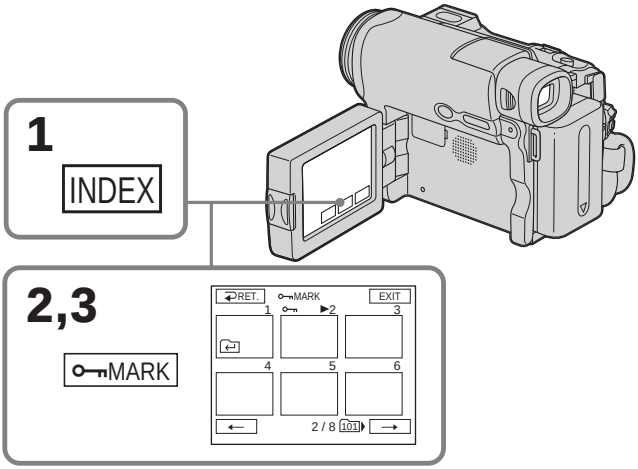
(1) Press FN to display PAGE1.
(2) Press MENU to display the menu.
(3) Select SLIDE SHOW in

Preventing accidental erasure – Image protection

To prevent accidental erasure of important images, you can protect selected images.

The POWER switch should be set to (MEMORY).
Operate by touching the panel.

(1) Press INDEX to display the index screen.
(2) Press MARK. The screen to protect the image appears.
(3) Press the image you want to protect. The indicator appears above the protected image.



To return to FN

Press EXIT.

To cancel image protection

Press the image you want to cancel image protection in step 3 again.
The indicator disappears from the image.

Note

Formatting erases all information on the "Memory Stick," including the protected image data. Check the contents of the "Memory Stick" before formatting.

If the write-protect tab on the "Memory Stick" is set to LOCK

You cannot turn on or off the indicator.

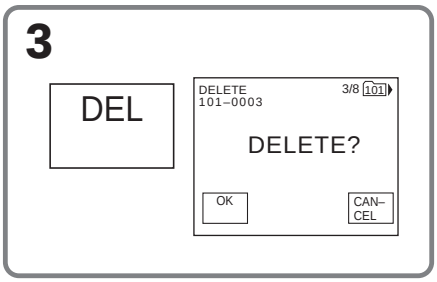
Deleting images – DELETE

You can delete all images or selected images.

Deleting selected images

The POWER switch should be set to (MEMORY).
Operate by touching the panel.

(1) Play back the image you want to delete.
(2) Press FN to display PAGE1.
(3) Press DEL. The DELETE? indicator appears on the screen.
(4) Press OK. The selected image is deleted.



To return to FN

Press EXIT.

To cancel deleting an image

Press CANCEL in step 4.

Notes

- To delete a protected image, first cancel image protection.
- Once you delete an image, you cannot restore it. Check the images to delete carefully before deleting them.

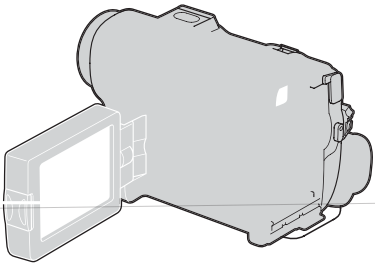
If the write-protect tab on the "Memory Stick" is set to LOCK

You cannot delete images.

Deleting selected images on the index screen

The POWER switch should be set to (MEMORY).
Operate by touching the panel.

(1) Press INDEX to display the index screen.
(2) Press DEL. Then press the image you want to delete. The number of the selected image is highlighted.
(3) Press EXEC. The DELETE? indicator appears on the screen.
(4) Press OK. The selected images are deleted.



To return to FN

Press EXIT.

To cancel deleting an image

Press CANCEL in step 4.

The maximum number of images you can select in one session

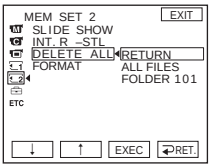
You can select up to 100 images to be deleted.

Deleting all the images

You can delete all the unprotected images in the “Memory Stick.”

The POWER switch should be set to (MEMORY).
Operate by touching the panel.

(1) Press FN to display PAGE1.
(2) Press MENU to display the menu.
(3) Select DELETE ALL in 2, then press EXEC (p. 180).



(4) Select ALL FILES or FOLDER □□□*, then press EXEC.
ALL FILES: To delete all of the images in the “Memory Stick”
FOLDER □□□: To delete the images in the folder selected with PB FOLDR
* The folder name appears in □□□.
(5) Select OK, then press EXEC.
OK changes to EXECUTE.
(6) Select EXECUTE, then press EXEC.
The DELETING indicator appears, then flashes on the screen.
When all the unprotected images are deleted, the COMPLETE indicator appears.

To return to FN

Press EXIT.

To cancel deleting all the images in the “Memory Stick”

Select RETURN in step 5 or 6, then press EXEC.

While the DELETING indicator is displayed
Do not turn the POWER switch or press any buttons.

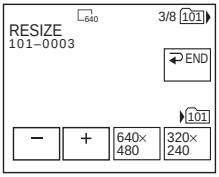
Even if all images are deleted
The folders are not deleted.

Changing image size – Resize (DCR-TRV33 only)

After recording, you can change the image size of recorded still images to 640 × 480 or 320 × 240. Resizing is useful when you want the image to be saved in a smaller size such as when you want to attach it to an e-mail message.
The original image is retained even after resizing.

The POWER switch should be set to (MEMORY).
Operate by touching the panel.

(1) During memory playback, press FN and select PAGE2.
(2) Press RESIZE.
The RESIZE screen appears.



(3) Press 640 × 480 or 320 × 240.
The resized image is recorded as the newest file in the selected folder.

To change still images

Press –/+ before step 3.

To return to FN

Press ↩ END to return to PAGE2, then press EXIT.

Notes

- You cannot resize the picture recorded with MPEG MOVIE recording.
- You may not be able to resize the picture recorded on other camcorder.
- You cannot select an image quality level (FINE or STANDARD) for resized pictures.

Size of a resized image

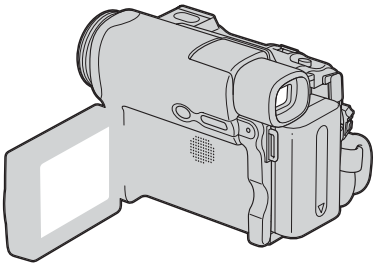
Image size	Memory capacity
640 × 480	About 150 KB
320 × 240	About 16 KB

Writing a print mark – Print mark

The print mark function is useful for printing out still images later. However you cannot set the number of printing.
Your camcorder conforms with the DPOF (Digital Print Order Format) standard for specifying the still images to print out.

The POWER switch should be set to (MEMORY).
Operate by touching the panel.

(1) Press INDEX to display the index screen.
(2) Press MARK. The screen to write a print mark appears.
(3) Press the image you want to write a print mark. The appears on the selected image.



To return to FN

Press EXIT.

To erase the print marks

Press the image you want to cancel the print mark in step 3 again. The disappears from the image.

If the write-protect tab on the "Memory Stick" is set to LOCK
You cannot write or erase print marks on still images.

Moving pictures
You cannot write print marks on moving pictures.

Viewing images with a computer – Introduction

There are following ways of connecting your camcorder to a computer in order to view images saved on the “Memory Stick” (DCR-TRV22/TRV33 only) or recorded on the tape on a computer.

To view images on a computer which has a “Memory Stick” slot, first eject the “Memory Stick” from your camcorder and then insert it into your computer’s “Memory Stick” slot (DCR-TRV22/TRV33 only).

		Connection cable		Reference pages	
					For Macintosh Users
Tape image/live from your camcorder		USB cable (supplied)			–
		i.LINK cable (optional)			–
“Memory Stick“ image (DCR-TRV22/TRV33 only)		USB cable (supplied)			172

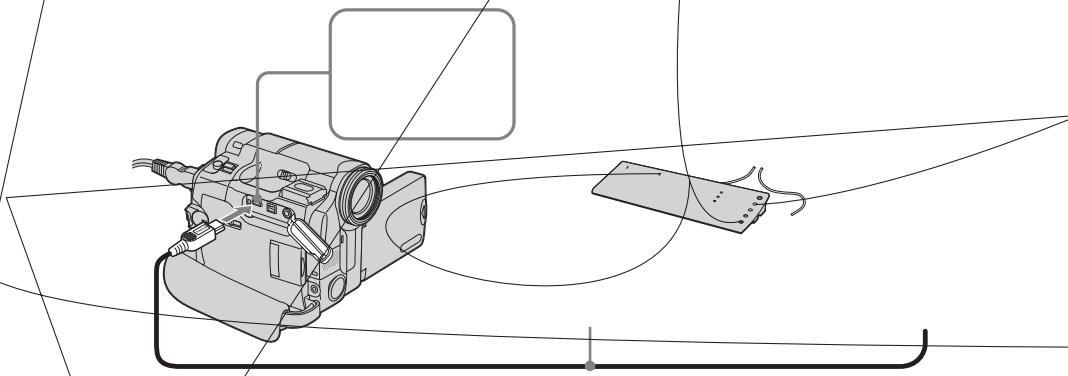
When connecting to a computer with the USB port, complete installation of the USB driver before connecting your camcorder to the computer. If you connect your camcorder to the computer first, you will not be able to install the USB driver correctly.

For details about the computer’s ports and editing software, contact the computer manufacturer.

Viewing pictures recorded on the tape

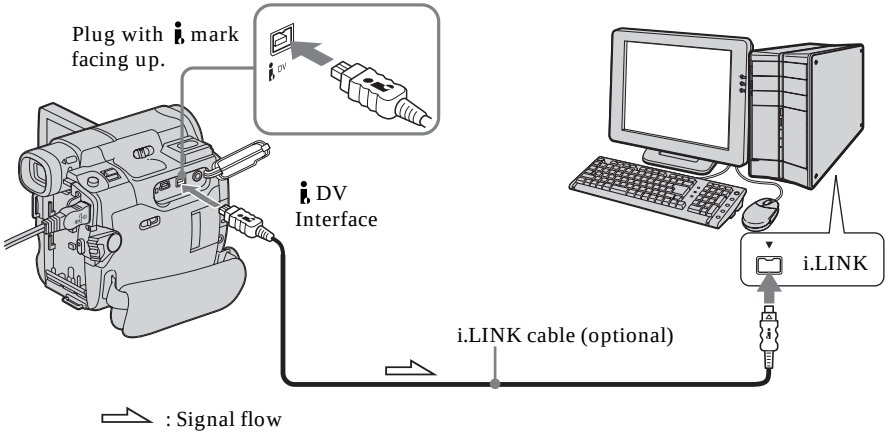
When connecting to a computer with the USB port

See page 151 for details.



When connecting to a computer with the DV port

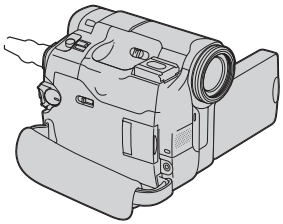
The computer must have a DV port and editing software installed that can read video signals.



Viewing images recorded on the "Memory Stick" (DCR-TRV22/TRV33 only)

When connecting to a computer with the USB port

See page 167 when using Windows and page 170 when using Macintosh.



You can also use a "Memory Stick" Reader / Writer (optional).

When connecting to a computer without the USB port

Use an optional floppy disk adaptor for "Memory Stick" or a PC card adaptor for "Memory Stick."
When purchasing an accessory, check its catalog beforehand for the recommended operating environment.

Notes on using your computer

"Memory Stick" (DCR-TRV22/TRV33 only)

- "Memory Stick" operations on your camcorder cannot be assured if a "Memory Stick" formatted on your computer is used on your camcorder, or if the "Memory Stick" in your camcorder was formatted from your computer when the USB cable was connected.
- Do not compress the data on the "Memory Stick." Compressed files cannot be played back on your camcorder.

Software

- Depending on your application software, the file size may increase when you open a still image file.
- When you load an image modified using retouching software from your computer to your camcorder or when you directly modify the image on your camcorder, the image format will differ so a file error indicator may appear and you may be unable to open the file.

Communications with your computer

Communications between your camcorder and your computer may not recover after recovering from Suspend, Resume, or Sleep.

Connecting your camcorder to a computer using the USB cable (For Windows users)

Complete installation of the USB driver before connecting your camcorder to a computer. If you connect your camcorder to a computer first, you will not be able to install the USB driver correctly.

When connecting to a computer with the USB port

You must **install a USB driver** onto the computer in order to connect your camcorder to the computer's USB port. The USB driver can be found on the CD-ROM supplied, along with the application software required for viewing images.
If you connect your camcorder and a computer using the USB cable, you can view pictures live from your camcorder and pictures recorded on the tape on a computer (USB Streaming function).
Furthermore, if you download pictures from your camcorder to a computer, you can process or edit them in image processing software and attach them to e-mail.
You can view images recorded on the "Memory Stick" on a computer (DCR-TRV22/TRV33 only).

Recommended computer usage environment when connecting with the USB cable and viewing tape pictures on a computer

OS:
Microsoft Windows 98SE, Windows Millennium Edition, Windows 2000 Professional, Windows XP Home Edition or Windows XP Professional
Standard installation is required.
However, operation is not assured if the above environment is an upgraded OS.
You cannot hear sound if your computer is running Windows 98, but you can read still images.
CPU:
Minimum 500 MHz Intel Pentium III or faster (800 MHz or faster recommended)
Application:
DirectX 8.0a or later
Sound system:
16 bit stereo sound card and stereo speakers
Memory:
64 MB or more
Hard disk:
Available memory required for installation:
at least 250 MB
Available hard disk memory recommended:
at least 1 GB (depending on the size of the image files edited)
Display:
4 MB VRAM video card, Minimum 800 × 600 dot High-color (16 bit color, 65 000 colors), Direct Draw display driver capability (At 800 × 600 dot or less, 256 colors and less, this product will not operate correctly.)
Others:
This product is based on DirectX technology, so it is necessary to install DirectX.
To create a Video CD, a CD-R drive is needed.

The USB port must be provided as standard.

You cannot use this function in the Macintosh environment.

Recommended computer usage environment when connecting with USB cable and viewing the "Memory Stick" images on a computer (DCR-TRV22/TRV33 only)

Recommended Windows environment

OS:

Microsoft Windows 98, Windows 98SE, Windows Millennium Edition, Windows 2000 Professional, Windows XP Home Edition or Windows XP Professional
Standard installation is required.
However, operation is not assured if the above environment is an upgraded OS.

CPU:

MMX Pentium 200 MHz or faster

Display:

Minimum 800 × 600 dot High-color (16 bit color, 65 000 colors) (At 800 × 600 dot or less, 256 colors and less, the screen for installing USB driver is not displayed.)

Others:

The USB port must be provided as standard. Windows Media Player must be installed (to play back moving pictures).

Notes

- Operations are not guaranteed for the Windows environment if you connect two or more USB equipment to a single computer at the same time, or when using a hub.
- Some equipment may not operate depending on the type of USB equipment that is used simultaneously.
- Operations are not guaranteed for all the recommended computer environments mentioned above.
- Windows and Windows Media are registered trademarks of Microsoft Corporation in the United States and / or other countries.
- Pentium is a trademark or registered trademark of Intel Corporation.
- All other product names mentioned herein may be the trademarks or registered trademarks of their respective companies. Furthermore, "TM" and "®" are not mentioned in each case in this manual.

Installing the USB driver

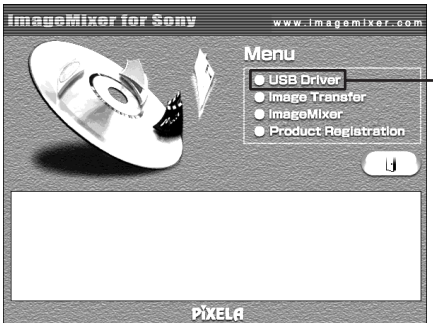
Start the following operation without connecting the USB cable to the computer.
Connect the USB cable according to "Making the computer recognize your camcorder" on page 156.

If you are using Windows 2000, log in with permission of administrators.
If you are using Windows XP, log in with permission of computer administrators.

(1) Turn on a computer and allow Windows to load. If you have been using the computer, close all softwares.
(2) Insert the supplied CD-ROM in the CD-ROM drive of the computer. The application software starts up.
If the screen does not appear, double-click "My Computer" and then "ImageMixer" (CD-ROM Drive).
(3) Select "Handycam" on the screen.



The title screen appears.
(4) Move the cursor to "USB Driver" and click. This starts USB driver installation.



(5) Follow the on-screen messages to install the USB driver.
(6) Remove the CD-ROM, then restart the computer and follow the on-screen messages.

Notes

- If you connect the USB cable before USB driver installation is complete, the USB driver will not be properly registered. Carry out installation again following the on-screen messages.
- The title screen is not displayed if the screen size of the computer is set to less than 800 × 600 dots and 256 colors or less. See pages 151, 152 about the recommended computer environment.

Installing Image Transfer (DCR-TRV22/TRV33 only)

Make sure USB driver installation is complete.
This function enables image data recorded on the “Memory Stick” to be automatically transferred (copied) to your computer.

If you are using Windows 2000, log in with permission of administrators.
If you are using Windows XP, log in with permission of computer administrators.

(1) Turn on your computer and allow Windows to load. If you have been using the computer, close all softwares.
(2) Insert the supplied CD-ROM in the CD-ROM drive of the computer. The application software starts up.
(3) Select “Handycam” on the screen.
The title screen appears.
(4) Move the cursor to “Image Transfer” and click.



The Install Wizard program starts up and the “Choose Setup Language” screen appears.
(5) Select the Language for installation.
(6) Follow the on-screen messages. The installation screen disappears when installation is complete.

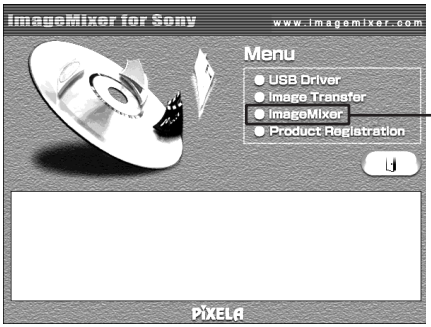
Installing ImageMixer

Make sure USB driver installation is complete.

“ImageMixer Ver. 1.5 for Sony” is an application that can capture or edit images, or create video CDs.

To install and use this software in Windows 2000, you must be authorized as administrators. For Windows XP, you must be authorized as computer administrators.

(1) Turn on a computer and allow Windows to load. If you have been using the computer, close all softwares.
(2) Insert the supplied CD-ROM into the CD-ROM drive of the computer.
The application software starts up.
(3) Select "Handycam” on the screen.
The title screen appears.
(4) Move the cursor to “ImageMixer” and click.



The Install Wizard program starts up and the “Choose Setup Language” screen appears.
(5) Select the language for installation.
(6) Follow the on-screen messages.
The installation screen disappears when installation is complete.
(7) Install the Win ASPI following the on-screen message (Windows 2000 and Windows XP users only).
(8) If DirectX 8.0a or later is not installed on the computer, continue installation after installing ImageMixer.
Follow the on-screen messages to install DirectX 8.0a. After installation is complete, restart the computer.

Memory Mix Album (DCR-TRV22/TRV33 only)
Once “ImageMixer” is installed, the Memory Mix album is created in “Album” of “ImageMixer” and sample images are stored in there.
Those sample images can be transferred from the Memory Mix album to a “Memory Stick” so that they can be used in MEMORY MIX (p. 120).

For details on the operation procedure, refer to the on-line help.

Replacing WinASPI

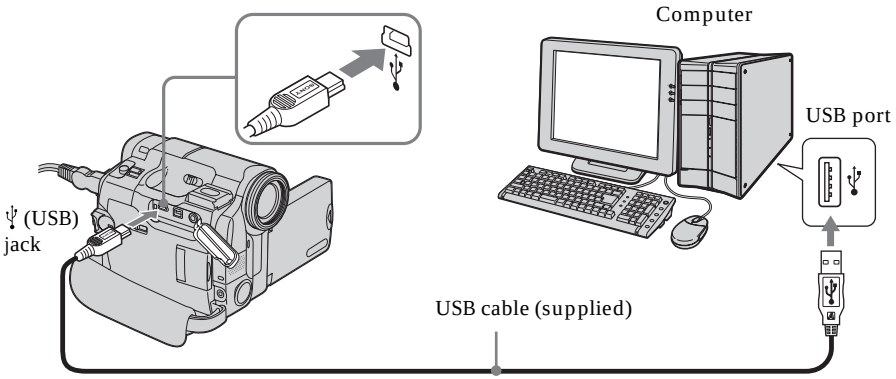
To use the ImageMixer CD writing function, you need to install WinASPI. If a different writing application has been already installed, its writing function may not work correctly. If that happens, reinstall the original application and replace WinASPI. Note that the ImageMixer CD writing function may not work properly.

Making the computer recognize your camcorder

If you are using Windows 2000, log in with permission of administrators.
If you are using Windows XP, log in with permission of computer administrators.

Viewing pictures recorded on the tape

(1) Connect the AC Adaptor to your camcorder.
(2) Set the POWER switch to VCR.
(3) Press FN to display PAGE1.
(4) Press MENU to display the menu.
(5) Select USB STREAM in , then press EXEC (p. 183).
(6) Select ON, then press EXEC.
(7) Connect the (USB) jack on your camcorder to the USB port on the computer using the supplied USB cable.
The computer recognizes your camcorder, and the Windows Add Hardware Wizard starts.



(8) Follow the on-screen messages so that the Add Hardware Wizard recognizes that the USB drivers have been installed. Be sure to allow the installation to complete without interrupting it.

For Windows 2000 and Windows XP users

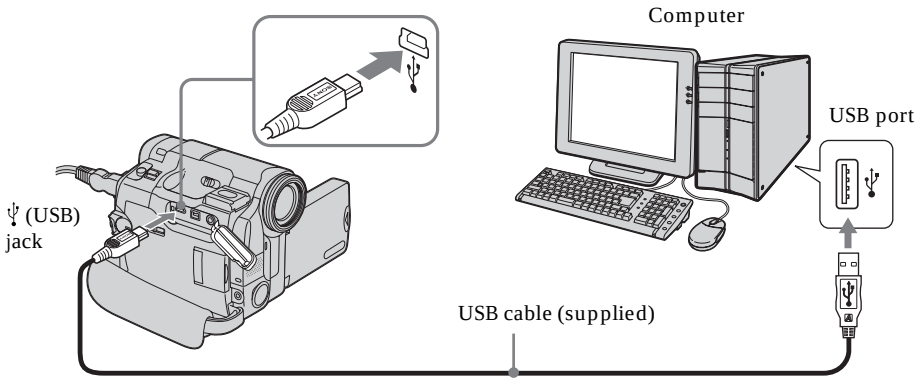
If you are prompted to confirm the digital signature, select “Yes” (Windows 2000) or “Continue Anyway” (Windows XP).

Viewing images recorded on the "Memory Stick" (DCR-TRV22/TRV33 only)

(1) Insert the "Memory Stick" into your camcorder.

(2) Connect the AC Adaptor, then set the POWER switch to MEMORY.

(3) Connect the ψ (USB) jack on your camcorder to the USB port on the computer using the supplied USB cable.
The USB MODE indicator appears on the LCD screen of your camcorder. The computer recognizes your camcorder, and the Add Hardware Wizard starts.



(4) Follow the on-screen messages so that the Add Hardware Wizard recognizes that the USB drivers have been installed. The Add Hardware Wizard starts twice because 2 different USB drivers are installed. Be sure to allow the installation to complete without interrupting it.

You cannot install the USB driver if the "Memory Stick" is not in your camcorder
Be sure to insert the "Memory Stick" into your camcorder before installing the USB driver.

If you cannot install the USB driver

The USB driver has been registered incorrectly as the computer was connected to your camcorder before installation of the USB driver was complete. Follow the procedure below to correctly install the USB driver.

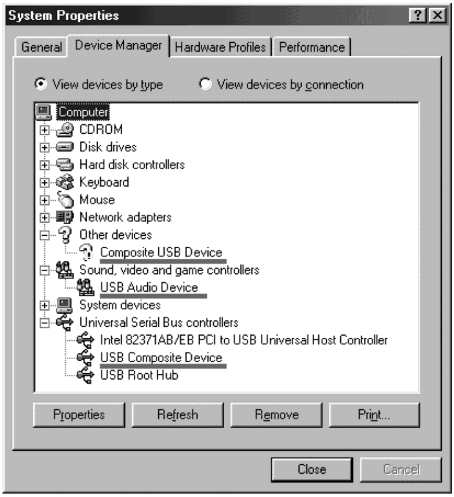
Viewing pictures recorded on the tape

Step 1: Uninstall the incorrect USB driver

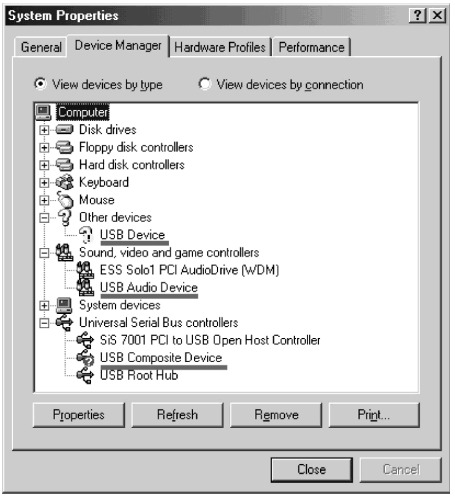
① Turn on the computer and allow Windows to load.
② Connect the AC Adaptor and set the POWER switch to (VCR).
③ Connect the USB port on the computer to the ψ (USB) jack on your camcorder using the USB cable supplied.
④ Open the computer's "Device Manager."

Windows XP:
Select "Start" → "Control Panel" → "System" → "Hardware", and click the "Device Manager" button.
If there is no "System" inside "Pick a category" after clicking "Control Panel," click "Switch to classic view" instead.
Windows 2000:
Select "My Computer" → "Control Panel" → "System" → "Hardware" tab, and click the "Device Manager" button.
Windows 98SE/Windows Me:
Select "My Computer" → "Control Panel" → "System," and click "Device Manager."

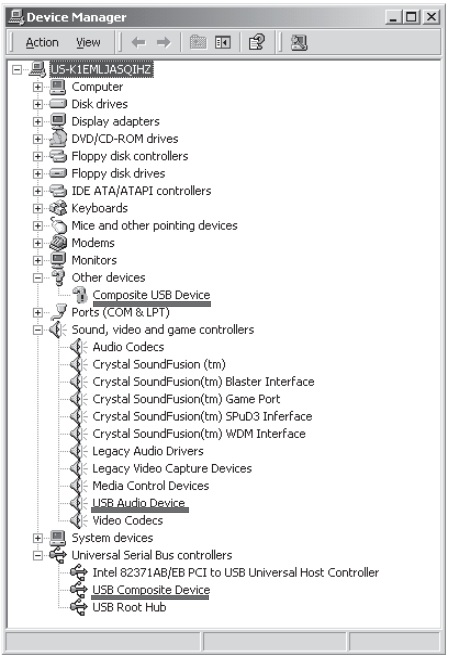
⑤ Select and delete the underlined devices below.



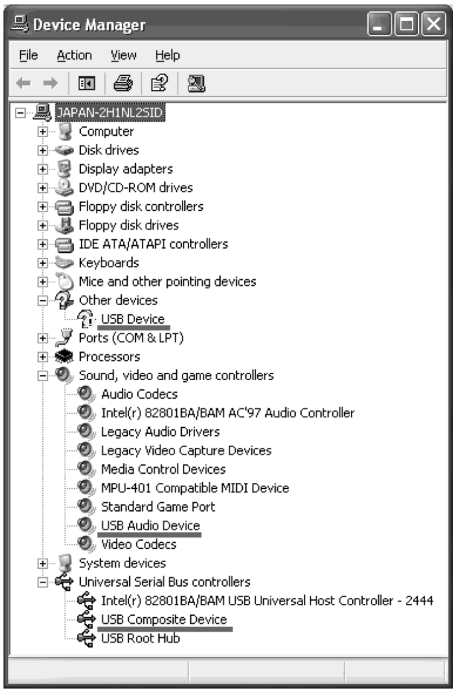
Windows 98SE



Windows Me



Windows 2000



Windows XP

⑥ Set the POWER switch to OFF (CHG) on your camcorder, then disconnect the USB cable.
⑦ Restart the computer.

Step 2: Install the USB driver on the supplied CD-ROM
Follow the entire procedure in “Installing the USB driver” on page 153.

Viewing images recorded on the "Memory Stick" (DCR-TRV22/TRV33 only)

Step1: Uninstall the incorrect USB driver

① Turn on the computer and allow Windows to load.
② Insert the "Memory Stick" into your camcorder.
③ Connect the AC Adaptor and set the POWER switch to (MEMORY).
④ Connect the USB port on the computer to the ψ (USB) jack on your camcorder using the USB cable supplied.
⑤ Open the computer's "Device Manager."

Windows XP:
Select "Start" → "Control Panel" → "System" → "Hardware" tab and click the "Device Manager" button.
If there is no "System" inside "Pick a category" after clicking "Control Panel," click "Switch to classic view" instead.
Windows 2000:
Select "My Computer" → "Control Panel" → "System" → "Hardware," and click the "Device Manager" button.
Other OS:
Select "My Computer" → "Control Panel" → "System," and click "Device Manager."

⑥ Select "Other devices."
Select the device prefixed with the "?" mark and delete.
Ex: (?)Sony Handycam
⑦ Set the POWER switch to OFF (CHG) on your camcorder, then disconnect the USB cable.
⑧ Restart the computer.

Step2: Install the USB driver on the supplied CD-ROM
Follow the entire procedure in "Installing the USB driver" on page 153.

Viewing pictures recorded on tape on a computer – USB Streaming (For Windows users)

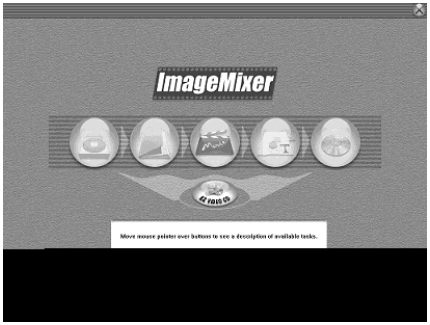
Capturing images with “ImageMixer Ver.1.5 for Sony”

You need to install the USB driver and ImageMixer to view pictures recorded on the tape on a computer (p. 153, 155).

Viewing pictures recorded on the tape

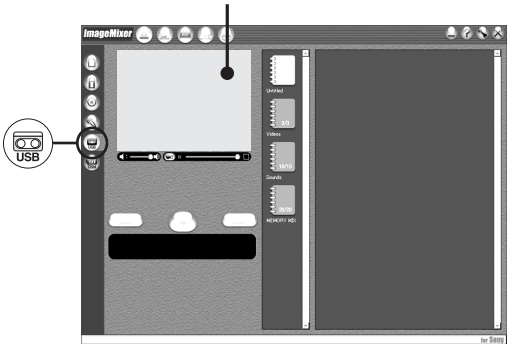
(1) Turn on the computer and allow Windows to load.
(2) Connect the AC Adaptor, then insert the cassette into your camcorder.
(3) Set the POWER switch to VCR.
(4) Press FN to display PAGE1.
(5) Press MENU to display the menu.
(6) Select USB STREAM in , then press EXEC (p. 183).
(7) Select ON, then press EXEC.
(8) Select “Start” → “Programs” → “PIXELA” → “ImageMixer” → “ImageMixer Ver.1.5 for Sony.”
The “ImageMixer Ver.1.5 for Sony” startup screen appears on the computer.
The title screen appears.

(9) Click on the screen.

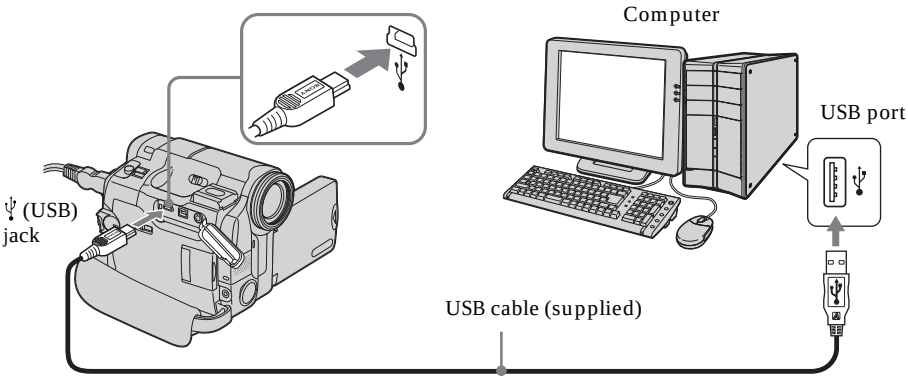


(10) Click USB.

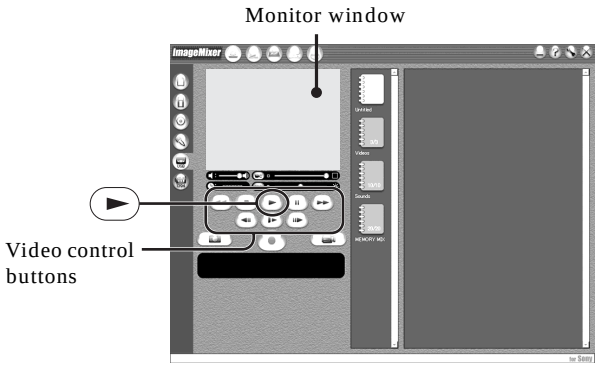
Monitor window



(11) Connect the ψ (USB) jack on your camcorder to the USB port on the computer using the supplied USB cable.



(12) Click (►) to start playback.
You can control video operations with the buttons on the screen.
The picture from the tape appears on the monitor window on the computer.



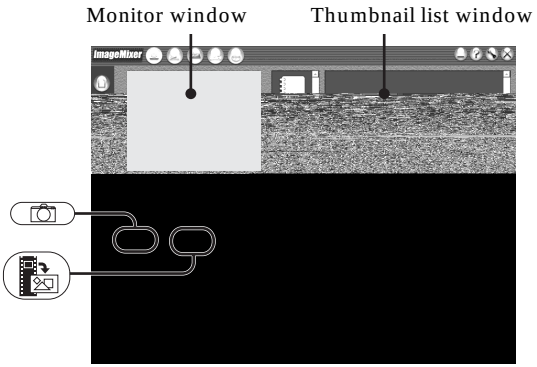
Viewing pictures live from your camcorder

(1) Follow the step 1 and 2 on page 161.

(2) Set the POWER switch to (CAMERA).

(3) Follow the step 4 to 11 on pages 161, 162.
The picture from your camcorder appears on the monitor window on the computer.

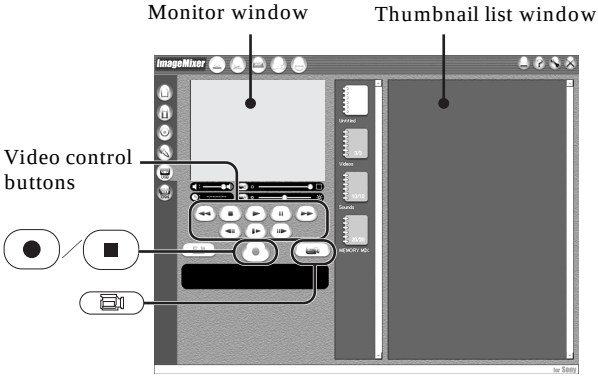
Capturing still images



(1) Click () .

(2) Looking at the monitor window, move the cursor to () and click it at the point you want to capture.
The still image on the screen is captured.
Captured images appear in the thumbnail list window.

Capturing moving pictures



(1) Click () .
(2) Click the album you want to capture.
(3) Click () to start playback.
(4) Looking at the monitor window, click () at the first scene of the movie you want to capture. () changes to () .

(5) Looking at the monitor window, click (■) at the last scene you want to capture.
The moving picture is captured. The captured images appear in the thumbnail list window.

To close "ImageMixer"

Click ⊗ at the top right of the screen.

Notes

- When the USB cable is used for connecting the computer, the images displayed on the computer monitor may appear jagged.
- When you view images on a computer with the USB connection, the following may occur. This is not a malfunction.
 – The image shakes up and down.
 – Some images are not displayed correctly due to noise, etc.
 – Some images are displayed with the cracking noise.
 – Images of different color systems to that of your camcorder are not displayed correctly.
- When your camcorder is during standby with a cassette inserted, it turns off automatically after five minutes.
- We recommend setting DEMO MODE to OFF in the menu settings when your camcorder is during standby, and no cassette is inserted.
- Indicators on the screen of your camcorder do not appear on images that are captured into the computer.
- If you capture a fast moving picture, the preview window may not move smoothly. You can make the picture move more smoothly by shifting the upper right slider on the bottom of the monitor window to the left, although this reduces the picture quality.
- You cannot carry out any "Memory Stick" operations during the USB Streaming.

If image data cannot be transferred by the USB connection

The USB driver has been registered incorrectly as the computer was connected to your camcorder before installation of the USB driver was complete. Reinstall the USB driver following the procedure on page 158.

If any trouble occurs

Close all running applications, then restart the computer.

Carry out the following operations after quitting the application:

– Disconnect the USB cable.
– Turn the POWER switch to the other position on your camcorder.

Making Video CDs – Easy Video CD

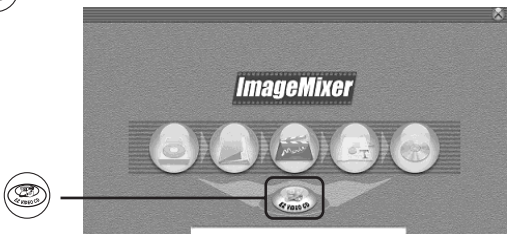
This function makes it simple to create a video CD by capturing images recorded on a tape or images live from your camcorder.

Capturing images recorded on a tape onto a CD-R

(1) Follow steps 1 to 8 on page 161.

(2) Press ■ after choosing the point on the tape from which you want to capture images onto the CD-R.

(3) Click .

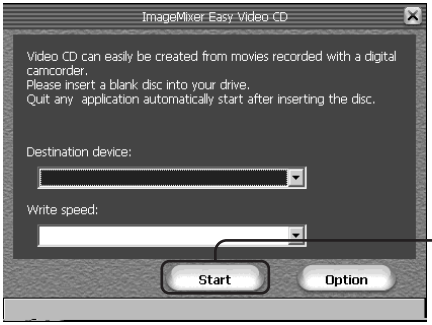


(4) Connect the ψ (USB) jack on your camcorder to the USB port on the computer using the supplied USB cable.

(5) Select the CD-R drive and writing speed on the ImageMixer Easy Video CD screen.

(6) Insert a new CD-R in the CD-R drive of the computer.

(7) Click “Start.”



The tape is automatically played back. Easy Video CD automatically begins to capture images onto the CD-R to create a Video CD.

(8) After the “Video CD successfully created.” message appears, click “Quit.”

Capturing images live from your camcorder onto a CD-R

Remove the cassette before the following operation. If a cassette is inserted, the power automatically goes out after about 5 minutes.

(1) Follow steps 1 and 2 on page 162.

(2) Set the POWER switch to CAMERA on your camcorder.

(3) Follow steps 4 to 8 on page 161.

(4) Follow steps 3 to 7 in “Capturing images recorded on a tape onto a CD-R.”

Notes

- A computer equipped with a CD-R drive is required.
- Do not press the button on your camcorder while creating a Video CD. If you press ■, only images up to that point are captured onto the Video CD and Easy Vide CD is closed.
- Once a disc has been created, you cannot add images to the disc.
- Select a hard disc with sufficient memory (at least 6 GB) from the “Option” screen as location for the "Location of work folder.”

Playing back the Video CDs

You can use a DVD player or a computer with a DVD drive to play back the Video CDs you created. To play back the Video CDs on a computer, you need to have Video CD software installed.

You can play back the Video CDs with Windows Media Player. However, you cannot use menu functions such as capturing function. You also may not be able to play back the Video CDs in certain computer environment such as OS or hardware.

(1) Start up Windows Media Player.

Windows XP:

Select “Start” → “All Programs” → “Accessory” → “Entertainment,” and click “Windows Media Player.”

Other OS:

Select “Start” → “Programs” → “Accessory” → “Entertainment,” and click “Windows Media Player.”

(2) Select “My Computer” → “CD-R,” and click “MPEGAV” folder, then drag and drop the “□□□*.DAT” moving picture file onto the Media Player screen. The moving picture will be played back.

* The file name is displayed in □□□.

Created Video CDs

The maximum recording time is about l hour. Capturing is divided into segments of about 10 minutes (approximately 4 GB) due to the specifications of the AVI capturing format. As a result, recording includes segment links about every 10 minutes, at which point images are skipped for several seconds.

Seeing the on-line help (operating instructions) of ImageMixer

An “ImageMixer Ver.1.5 for Sony” on-line help site is available where you can find the detailed operating method of “ImageMixer Ver.1.5 for Sony.”

(1) Click ⓘ located in the upper-right corner of the screen.
The ImageMixer’s Manual screen appears.

(2) You can find the information you need from the list of contents.

To close on-line help

Click ☒ at the top right of the screen.

If you have any questions about ImageMixer

“ImageMixer Ver.1.5 for Sony” is the product of PIXELA corporation. For details, refer to the operating instructions of the CD-ROM supplied with your camcorder.

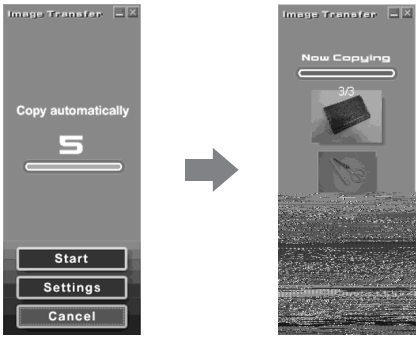
Viewing images recorded on “Memory Stick” on a computer (For Windows users) (DCR-TRV22/TRV33 only)

The image data recorded on the “Memory Stick” is automatically transferred (copied) to a computer with Image Transfer. You can view images with ImageMixer.

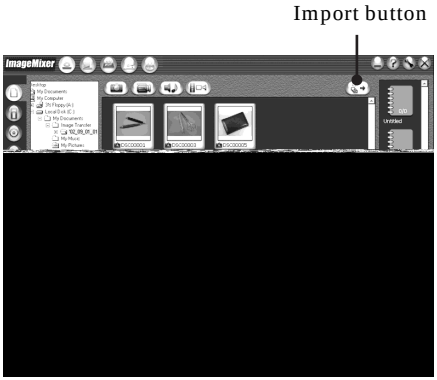
Before operation

You need to install the USB driver, Image Transfer and ImageMixer to view the “Memory Stick” images on a computer (p. 153).

(1) Turn on your computer and allow Windows to load.
(2) Insert the “Memory Stick” into your camcorder, then connect the AC Adaptor to your camcorder.
(3) Set the POWER switch to (MEMORY) .
(4) Connect the ψ (USB) jack on your camcorder to the USB port on the computer using the supplied USB cable.
(5) Image Transfer automatically starts up and the transfer of image data begins.



(6) ImageMixer automatically starts up, enabling you to view the copied image.



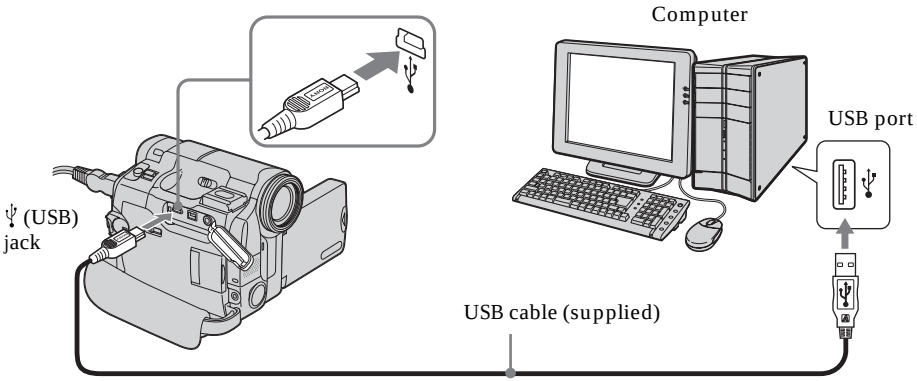
(7) Select an album and the image, then press the import button. The image is added in your album, and you can edit the image.

Viewing images without Image Transfer

Before operation

- You need to install the USB driver to view the "Memory Stick" images on a computer (p. 153).
- An application such as Windows Media Player must be installed to play back moving pictures in Windows environment.

(1) Turn on the computer and allow Windows to load.
(2) Insert the "Memory Stick" into your camcorder, then connect the AC Adaptor to your camcorder.
(3) Set the POWER switch to MEMORY.
(4) Connect the (USB) jack on your camcorder to the USB port on the computer using the supplied USB cable.
The USB MODE indicator appears on the screen of your camcorder.



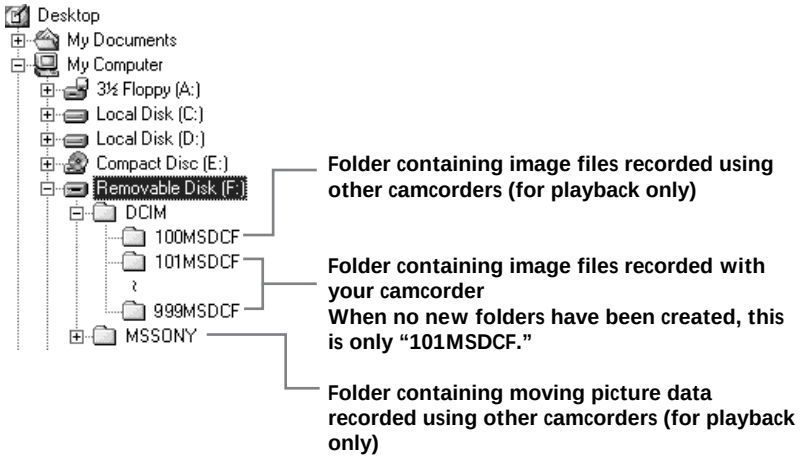
(5) Open "My Computer" on Windows and double-click the newly recognized drive (Example: "Removable Disk (F:)").
The folders inside the "Memory Stick" appear.
(6) Double-click a desired image file from the folder in this order.
"DCIM" folder → "□□□MSDCF" folder[1] → Image file[2]
See "Image file storage destinations and image files" (p. 169), for the detailed folder and file name.

[1] □□□ stands for any number (within the range) from 101 to 999.
[2] Copying a file to the hard disk of the computer before viewing it is recommended. If you play back the file directly from the "Memory Stick," the image and sound may break off.

Image file storage destinations and image files

Image files recorded with your camcorder are grouped according to the folders in the "Memory Stick." The meanings of the file names are as follows. □□□□ stands for any number within the range from 0001 to 9999.

Example: For Windows Me users (The drive recognizing your camcorder is [F:].)



Folder	File	Meaning
101MSDCF	DSC0□□□□.JPG	Still image file
(up to 999MSDCF)	MOV0□□□□.MPG	Moving picture file

When finished, disconnect the USB cable and remove the "Memory Stick" or set the POWER switch to OFF (CHG)

For Windows 2000, Windows Me, Windows XP users

(1) Move the cursor to the "Unplug or Eject Hardware" on the Task Tray and click to cancel the applicable drive.

(2) After the "Safe to remove" message appears, disconnect the USB cable and eject the "Memory Stick" or set the POWER switch to OFF (CHG).

Connecting your camcorder to a computer using the USB cable (For Macintosh users) (DCR-TRV22/TRV33 only)

When connecting to a computer with the USB cable

You must **install a USB driver** onto a computer in order to connect your camcorder to the computer's USB port. The USB driver can be found on the CD-ROM supplied, along with the application software required for viewing images.

Recommended Macintosh environment

Mac OS 8.5.1/8.6/9.0/9.1/9.2 or Mac OS X (v10.0/v10.1/v10.2) standard installation is required.
However, note that the update to Mac OS 9.0/9.1 should be used for the following models.

- iMac with the Mac OS 8.6 standard installation and a slot loading type CD-ROM drive
- iBook or Power Mac G4 with the Mac OS 8.6 standard installation

The USB port must be provided as standard.

QuickTime 3.0 or later must be installed to play back moving pictures.

Notes

- Operations are not guaranteed for the Macintosh environment if you connect two or more USB equipment to a single computer at the same time, or when using a hub.
- Some equipment may not operate depending on the type of USB equipment that is used simultaneously.
- Operations are not guaranteed for all the recommended computer environments mentioned above.
- Macintosh, iMac, iBook, Power Mac and Mac OS, QuickTime are trademarks of Apple Computer Inc.
- All other product names mentioned herein may be the trademarks or registered trademarks of their respective companies. Furthermore, "TM" and "®" are not mentioned in each case in this manual.

Installing the USB driver

Do not connect the USB cable to a computer before installation of the USB driver is complete.

For Mac OS 8.5.1/8.6/9.0 users

(1) Turn on the computer and allow the Mac OS to load. If you have been using the computer, close all softwares.

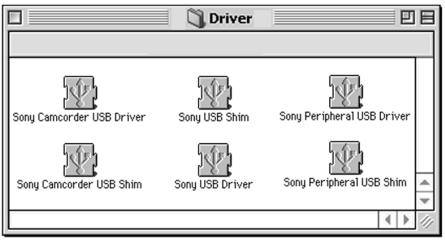
(2) Insert the supplied CD-ROM in the CD-ROM drive of the computer.
The application software screen appears.

(3) Select "Handycam" on the screen.
The title screen appears.

(4) Click the "USB Driver" to open the folder containing the six files related to "Driver."



(5) Select the following two files, and drag and drop them into the System Folder.
- Sony Camcorder USB Driver
- Sony Camcorder USB Shim



(6) When the message appears, click "OK."
The USB driver is installed on the computer.

(7) Remove the CD-ROM from the computer.

(8) Restart the computer.

For Mac OS 9.1/9.2/Mac OS X (v10.0/v10.1/v10.2)

The USB driver need not be installed. Your camcorder is automatically recognized as a drive just by connecting your Mac using the USB cable.

Viewing images recorded on “Memory Stick” on a computer (For Macintosh users) (DCR-TRV22/TRV33 only)

Viewing images

Before operation

- You need to install the USB driver to view the “Memory Stick” images on a computer (p. 171).
- QuickTime 3.0 or later must be installed to play back moving pictures.

(1) Turn on the computer and allow Mac OS to load.
(2) Insert the “Memory Stick” into your camcorder, then connect the AC Adaptor to your camcorder.
(3) Set the POWER switch to MEMORY.
(4) Connect the ψ (USB) jack on your camcorder to the USB port on the computer using the supplied USB cable.
The USB MODE indicator appears on the screen of your camcorder.
(5) Double-click the “Memory Stick” icon on the desktop.
The folders inside the “Memory Stick” are displayed.
(6) Double-click a desired image file from the folder in this order.
“DCIM” folder → “□□□MSDCF” folder[1] → Image file[2]

[1] □□□ stands for any number (within the range) from 101 to 999.
[2] Copying a file to the hard disk of the computer before viewing it is recommended. If you play back the file directly from the “Memory Stick,” the image and sound may break off.

When finished, disconnect the USB cable and remove the “Memory Stick” or set the POWER switch to OFF (CHG)

(1) Close all running applications.
Make sure that the “Memory Stick” access lamp of your camcorder is not lit.
(2) Drag the “Memory Stick” icon into the “Trash.” Alternatively, select the “Memory Stick” icon by clicking on it, then select “Eject disk” from the “Special” menu at the top left of the screen.
(3) Disconnect the USB cable and remove the “Memory Stick” or set the POWER switch to OFF (CHG).

For Mac OS X (v10.0) users

Shut down the computer, then disconnect the USB cable and remove the “Memory Stick” or set the POWER switch to OFF (CHG).

Capturing images from an analog video unit on a computer – Signal convert function (DCR-TRV22/TRV33 only)

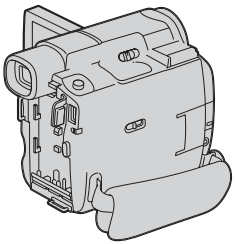
You can capture images and sound from an analog video unit connected to a computer which has the DV port via your camcorder.

Before operation

Set DISPLAY in ETC to LCD in the menu settings. (The default setting is LCD.)

The POWER switch should be set to (VCR).
Operate by touching the panel.

(1) Press FN to display PAGE1.
(2) Press MENU to display the menu.
(3) Select A / V → DV OUT in , then press EXEC (p. 178).
(4) Select ON, then press EXEC.
(5) Start playback on the analog video unit.
(6) Start capturing procedures on the computer.
The operation procedures depend on the computer and the software which you use.
For details of how to capture images, refer to the operating instructions of the computer and software.



After capturing images and sound

Stop capturing procedures on the computer, and stop playback on the analog video unit.

Notes

- You need the software and computer that support the exchange of digital video signals.
- Depending on the condition of the analog video signals, the computer may not be able to output the images correctly when you convert video signals into digital video signals via your camcorder. Depending on the analog video unit, the image may contain noise or incorrect colors.
- You cannot record or capture the video output via your camcorder when the video tapes include copyright protection signals such as the ID-2 system.

If the computer has a USB port

You can connect using a USB cable, but images may not be transferred smoothly.

If your VCR has an S video jack

See page 45 for details.

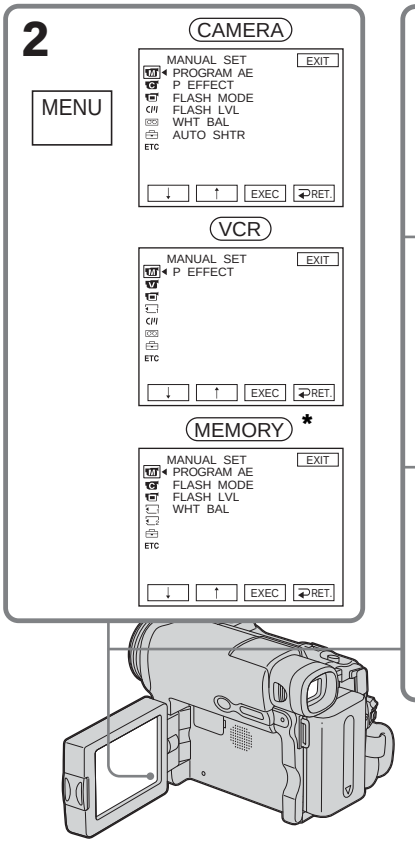
Changing the menu settings

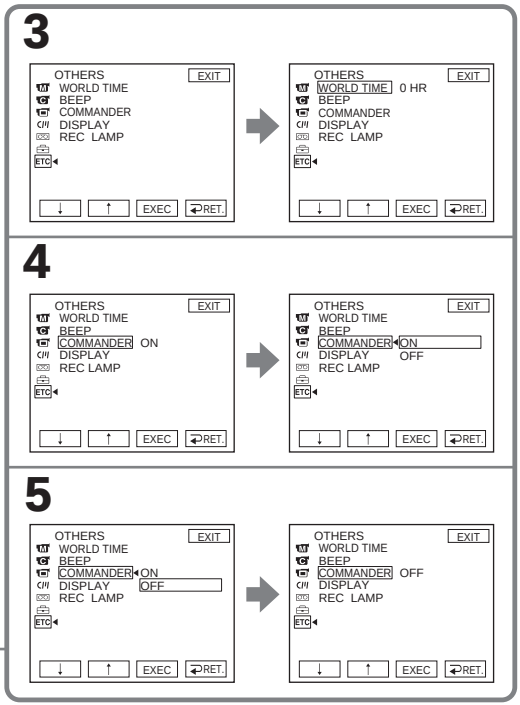
To change the mode settings in the menu settings, select the menu items with ↓/↑. The default settings can be partially changed. First, select the icon, then the menu item and the mode.

The POWER switch should be set to (CAMERA), (VCR) or (MEMORY) (DCR-TRV22/TRV33 only).
Operate by touching the panel.

(1) Press FN to display PAGE1.
(2) Press MENU to display the menu.
(3) Press ↓/↑ to select a desired icon, then press EXEC.
(4) Press ↓/↑ to select a desired item, then press EXEC.
(5) Press ↓/↑ to select a desired setting, then press EXEC.
(6) Repeat steps 3 to 5 if you want to change other items. Press ⮌ RET. to return to step 3.

For details, see “Selecting the mode setting of each item” (p. 176).





* DCR-TRV22/TRV33 only

To return to FN

Press EXIT.

Menu items are displayed as the following icons:

- MANUAL SET
- CAMERA SET
- VCR SET
- LCD/VF SET
- MEM SET 1 (DCR-TRV22/TRV33 only)
- MEM SET 2 (DCR-TRV22/TRV33 only)
- CM SET
- TAPE SET
- SETUP MENU
- OTHERS

Selecting the mode setting of each item

● is the default setting.

Menu items differ depending on the position of the POWER switch.
The screen shows only the items you can operate at the moment.

Icon/item	Mode	Meaning	POWER switch
MANUAL SET			
PROGRAM AE	——	To suit your specific shooting requirement (p. 62)	CAMERA / MEMORY*
P EFFECT	——	To add special effects like those in movies or on the TV to images (p. 58, 72)	VCR / CAMERA
FLASH MODE	● ON	To trigger the flash (optional) regardless of the brightness of the surroundings	CAMERA / MEMORY*
	ON	To trigger the flash (optional) regardless of the brightness of the surroundings. The flash goes off prematurely to reduce the red-eye phenomenon.	
	AUTO	To trigger the flash (optional) automatically	
	AUTO	To trigger the flash (optional) automatically. The flash goes off prematurely to reduce the red-eye phenomenon.	
FLASH LVL	HIGH	To make the flash (optional) level higher than normal	CAMERA / MEMORY*
	● NORMAL	To use the normal setting	
	LOW	To make the flash (optional) level lower than normal	
WHT BAL	——	To adjust the white balance (p. 52)	CAMERA / MEMORY*
AUTO SHTR	● ON	To automatically activate the electronic shutter when shooting in bright conditions	CAMERA
	OFF	Not to activate the electronic shutter even when shooting in bright conditions	

* DCR-TRV22/TRV33 only

	ON	To record [illegible]
STEADYSHOT	● ON	To compensate for camera-shake
	OFF	To cancel SteadyShot. Natural pictures are produced when shooting a stationary subject with a tripod.
EDITSEARCH	● OFF	Not to display ⏪/– · + on the LCD screen
	ON	To display ⏪/– · + on the LCD screen (p. 38)
N.S. LIGHT	● ON	To use the NightShot Light (p. 34)
	OFF	To cancel the NightShot Light

* DCR-TRV22 / TRV33 only

Notes on SteadyShot

• SteadyShot will not correct excessive camera-shake.
• Attachment of a conversion lens (optional) may influence SteadyShot.

If you cancel SteadyShot

The "✋ OFF" (SteadyShot off) indicator appears. Your camcorder prevents excessive compensation for camera-shake.

(continued on the following page)

Icon/item	Mode	Meaning	POWER switch
VCR SET			
HiFi SOUND	● STEREO	To play back the stereo tape or dual sound track tape with main and sub sound (p. 198)	(VCR)
	1	To play back the stereo tape with the left sound or the dual sound track tape with main sound	
	2	To play back the stereo tape with the right sound or the dual sound track tape with sub sound	
AUDIO MIX	——	To adjust the balance between stereo 1 and stereo 2 (p. 100) 	(VCR)
A/V → DV OUT*	● OFF	To output digital images and sound in analog format using your camcorder	(VCR)
	ON	To output analog images and sound in digital format using your camcorder (p. 173)	
LCD/VF SET			
LCD B.L.	● BRT NORMAL	To set the brightness on the LCD screen normal	(VCR) (CAMERA) (MEMORY)*
	BRIGHT	To brighten the LCD screen	
LCD COLOR	——	To adjust the color on the LCD screen with ↓/↑ 	(VCR) (CAMERA) (MEMORY)*
VF B.L.	● BRT NORMAL	To set the brightness on the viewfinder screen to normal	(VCR) (CAMERA) (MEMORY)*
	BRIGHT	To brighten the viewfinder screen	

* DCR-TRV22/TRV33 only

Notes on LCD B.L. and VF B.L.

- When you select BRIGHT, battery life is reduced by about 10 percent during recording.
- When you use power sources other than the battery pack, BRIGHT is automatically selected.

Even if you adjust LCD B.L., LCD COLOR and VF B.L.

The recorded picture will not be affected.

Icon/item	Mode	Meaning	POWER switch
MEM SET 1*			
STILL SET			
BURST**	● OFF	Not to record continuously	(MEMORY)
	NORMAL	To record from 4 to 13 images continuously (p. 116)	
	EXP BRKTG	To record 3 images continuously with different exposure	
QUALITY	● FINE	To record still images in the fine image quality mode (p. 110)	(VCR) (MEMORY)
	STANDARD	To record still images in the standard image quality mode	
IMAGESIZE**	● 1152 × 864	To record still images in 1152 × 864 size (p. 111)	(MEMORY)
	640 × 480	To record still images in 640 × 480 size	
MOVIE SET			
IMAGESIZE	● 320 × 240	To record moving pictures in 320 × 240 size (p. 112)	(VCR) (MEMORY)
	160 × 112	To record moving pictures in 160 × 112 size	
REMAIN	● AUTO	To display the remaining capacity of the "Memory Stick" in the following cases: • For 5 seconds after setting the POWER switch to MEMORY or VCR • For 5 seconds after setting the POWER switch to MEMORY or VCR and inserting the "Memory Stick" • When the remaining capacity of the "Memory Stick" is less than 2 minutes after setting the POWER switch to MEMORY • For 5 seconds from the start of moving picture recording • For 5 seconds after completing moving picture recording	(VCR) (MEMORY)
	ON	To always display the remaining capacity of the "Memory Stick"	
NEW FOLDER	● ADD	To create a new folder	(MEMORY)
	RETURN	To cancel creating a new folder	
REC FOLDER	——	To change image file storage destinations	(MEMORY)
FILE NO.	● SERIES	To assign numbers to files in sequence even if the "Memory Stick" is changed. However, the file numbering sequence is reset when a new folder is made or the recording folder is changed.	(VCR) (MEMORY)
	RESET	To reset the file numbering sequence each time the "Memory Stick" is changed	

* DCR-TRV22/TRV33 only
** DCR-TRV33 only

When you select image quality
The number of images you can shoot in the currently selected image quality appears on the screen.

(continued on the following page)

Icon/item	Mode	Meaning	POWER switch
MEM SET 2*			
SLIDE SHOW	RETURN	To cancel slide show	MEMORY
	● ALL FILES	To play back all the images on the "Memory Stick" executing slide show	
	FOLDER □□□**	To play back all the images in the playback folder you are selecting executing slide show	
INT. R -STL	ON	To activate Interval Photo Recording (p. 124)	MEMORY
	● OFF	To deactivate Interval Photo Recording	
	SET	To set INTERVAL for Interval Photo Recording	
DELETE ALL	● RETURN	To cancel deleting all the image	MEMORY
	ALL FILES	To delete all the unprotected images (p. 145)	
	FOLDER □□□**	To delete all the images in the playback folder you are selecting	
FORMAT	● RETURN	To cancel formatting	MEMORY
	OK	To format the inserted "Memory Stick" Formatting erases all information on the "Memory Stick." Check the contents of the "Memory Stick" before formatting. 1. Select FORMAT, then press EXEC. 2. Select OK, then press EXEC. 3. After the EXECUTE indicator appears, press EXEC. The FORMATTING indicator flashes during formatting. The COMPLETE indicator appears when formatting is complete.	

* DCR-TRV22/TRV33 only
** The folder name is displayed in □□□.

Notes on formatting

- Do not do any of the following while the FORMATTING indicator appears:
 – Turn the POWER switch to the other position
 – Operate buttons
 – Eject the "Memory Stick"
- The "Memory Stick" supplied with your camcorder has been formatted at factory. Formatting with your camcorder is not required.
- You cannot format the "Memory Stick" if the write-protect tab on the "Memory Stick" is set to LOCK.
- Format the "Memory Stick" if the "FORMAT ERROR" indicator appears.
- Formatting erases sample images on the "Memory Stick."
- Formatting erases protected image data on the "Memory Stick."
- Formatting erases newly created folders.

Icon/item	Mode	Meaning	POWER switch
CM SET			
TITLE	——	To superimpose a title or make your own title (p. 101, 103)	VCR CAMERA
TITLEERASE	——	To erase the title you have superimposed (p. 102)	VCR CAMERA
TITLE DSPL	● ON	To display the title you have superimposed	VCR
	OFF	To not display the title (p. 102)	
CM SEARCH	● ON	To search using Cassette Memory (p. 76, 77, 79)	VCR
	OFF	To search without using Cassette Memory (p. 78, 79)	
TAPE TITLE	——	To label the cassette (p. 104)	VCR CAMERA
ERASE ALL	● RETURN	To cancel erasing all the data	VCR CAMERA
	OK	To erase all the data in Cassette Memory (p. 105)	

(continued on the following page)

Icon/item	Mode	Meaning	POWER switch
TAPE SET			
REC MODE	● SP	To record in the SP (Standard Play) mode	VCR / CAMERA
	LP	To increase the recording time to 1.5 times the SP mode	
AUDIO MODE	● 12BIT	To record in the 12-bit mode (2 stereo sounds)	VCR* / CAMERA
	16BIT	To record in the 16-bit mode (1 stereo sound with high quality)	
REMAIN	● AUTO	To display the remaining tape: • For about 8 seconds after setting the POWER switch to VCR or CAMERA and inserting a cassette, then your camcorder calculates the remaining amount of tape • For about 8 seconds after DSPL / BATT INFO is pressed twice • For about 8 seconds after setting the POWER switch to VCR and ▶II is pressed	VCR / CAMERA
	ON	To always display the remaining tape indicator	
FRAME REC	● OFF	To deactivate frame recording	CAMERA
	ON	To activate frame recording (p. 69)	
INT. REC	ON	To activate Interval Recording (p. 68)	CAMERA
	● OFF	To deactivate Interval Recording	
	SET	To set INTERVAL and REC TIME for Interval Recording	

* DCR-TRV22 / TRV33 only

Notes on the LP mode

- When you record the tape in the LP mode on your camcorder, we recommend playing back the tape on your camcorder. When you play back the tape on other camcorders or VCRs, noise may occur in pictures or sound.
- When you record in the LP mode, we recommend using a Sony Excellence / Master mini DV cassette so that you can get the most out of your camcorder.
- You cannot make audio dubbing on the tape recorded in the LP mode. Use the SP mode for the tape to be audio dubbed.
- When you record in the SP and LP modes on one tape or you record some scenes in the LP mode, the playback picture may be distorted or the time code may not be written properly between scenes.

Notes on AUDIO MODE

- You cannot dub audio sound on the tape recorded in the 16-bit mode.
- When playing back the tape recorded in the 16-bit mode, you cannot adjust the balance in AUDIO MIX.

Icon/item	Mode	Meaning	POWER switch
SETUP MENU			
CLOCK SET	——	To set the date or time (p. 22)	(CAMERA) (MEMORY)*
USB STREAM	● OFF	To deactivate the USB Streaming function	(VCR) (CAMERA)
	ON	To activate the USB Streaming function	
LANGUAGE	● ENGLISH	To display the information indicators in English	(VCR) (CAMERA) (MEMORY)*
	FRANÇAIS	To display the information indicators in French	
	ESPAÑOL	To display the information indicators in Spanish	
	PORTUGUÊS	To display the information indicators in Portuguese	
	中文	To display the information indicators in Chinese	
	한국어	To display the information indicators in Korean	
DEMO MODE	● ON	To make the demonstration appear	(CAMERA)
	OFF	To cancel the demonstration mode	

* DCR-TRV22/TRV33 only

Notes on DEMO MODE

- You cannot select DEMO MODE when the cassette or the “Memory Stick” (DCR-TRV22/TRV33 only) is inserted in your camcorder.
- When NIGHTSHOT is slid to ON, the ”NIGHTSHOT” indicator appears on the screen and you cannot select DEMO MODE in the menu settings.
- If you press the touch panel during the demonstration, the demonstration stops for a while, then it starts again after about 10 minutes.
- DEMO MODE is set to STBY (Standby) at the default setting and the demonstration starts about 10 minutes after you have set the POWER switch to CAMERA without the cassette and the “Memory Stick” inserted.
 To cancel the demonstration, insert the cassette, set the POWER switch to other than CAMERA, or set DEMO MODE to OFF. To set to STBY (Standby) again, leave the DEMO MODE at ON in the menu settings, set the POWER switch OFF (CHG), then back to CAMERA.

(continued on the following page)

Icon/item	Mode	Meaning	POWER switch
ETC **OTHERS**			
DATA CODE (On the Remote Commander)	● DATE/CAM	To display date, time and various settings during playback when you press DATA CODE on the Remote Commander (p. 41)	(VCR) (MEMORY)*
	DATE	To display date and time during playback when you press DATA CODE on the Remote Commander	
WORLD TIME	——	To set the clock to the local time. Press ↓/↑ to set a time difference. The clock changes by the time difference you set here. If you set the time difference to 0, the clock returns to the originally set time.	(CAMERA) (MEMORY)*
BEEP	● MELODY	To output the melody when you start/stop recording or when an unusual condition occurs on your camcorder	(VCR) (CAMERA) (MEMORY)*
	NORMAL	To output the beep instead of the melody	
	OFF	To cancel melody, the beep sound and shutter sound	
COMMANDER	● ON	To activate the Remote Commander supplied with your camcorder	(VCR) (CAMERA) (MEMORY)*
	OFF	To deactivate the Remote Commander to avoid remote control misoperation caused by other VCR's remote control	
DISPLAY	● LCD	To show the display on the LCD screen and viewfinder	(VCR) (CAMERA) (MEMORY)*
	V-OUT/LCD	To show the display on the TV screen, LCD screen and viewfinder	

* DCR-TRV22/TRV33 only

Note

If you press DSPL/BATT INFO with DISPLAY set to V-OUT/LCD in the menu settings, the picture from a TV or VCR will not appear on the LCD screen even when your camcorder is connected to the output jacks on the TV or VCR.

Icon/item	Mode	Meaning	POWER switch
ETC OTHERS			
REC LAMP	● ON	To light up the camera recording lamp at the front of your camcorder	(CAMERA) (MEMORY)*
	OFF	To turn the camera recording lamp off so that the person is not aware of the recording	
VIDEO EDIT	● RETURN*	To cancel Digital program editing	(VCR)
	TAPE*	To make programs and perform Digital program editing on the tape (p. 85)	
	MEMORY*	To make programs and perform Digital program editing on the "Memory Stick" (p. 130)	

* DCR-TRV22 / TRV33 only

When recording a close subject

When REC LAMP is set to ON, the red camera recording lamp on the front of your camcorder may reflect on the subject if it is close. In this case, we recommend you set REC LAMP to OFF.

In more than 5 minutes after removing the power source

The PROGRAM AE, FLASH LVL, AUDIO MIX, WHT BAL, HiFi SOUND and COMMANDER items are returned to their default settings.
Other menu items are held in memory even when the power source is removed.

Types of trouble and how to correct trouble

If you run into any problem using your camcorder, use the following table to troubleshoot the problem. If the problem persists, disconnect the power source and contact your Sony dealer. If "C:□□:□□" appears on the screen, the self-diagnosis display function has activated. See page 194.

During recording

Symptom	Cause and/or Corrective Actions
START/STOP does not operate.	• The POWER switch is not set to CAMERA. → Set it to CAMERA (p. 9, 25). • Your camcorder automatically turns off to prevent the battery pack from running out and to protect the tape when your camcorder has been during recording standby for more than 5 minutes. → Set the POWER switch to OFF (CHG) and then to CAMERA. • The tape has run out. → Rewind the tape or insert a new one (p. 8, 39). • The write-protect tab is set to expose the red mark. → Use a new cassette or slide the tab (p. 198). • The tape is stuck to the drum (moisture condensation). → Remove the cassette and leave your camcorder for at least 1 hour to acclimatize (p. 205).
The power goes off.	• Your camcorder automatically turns off to prevent the battery pack from running out and to protect the tape when your camcorder has been during recording standby for more than 5 minutes. → Set the POWER switch to OFF (CHG) and then to CAMERA. • The battery pack is dead or nearly dead. → Install a fully charged battery pack.
The picture in the viewfinder is not clear.	• The viewfinder is not extended. → Extend the viewfinder (p. 31). • The viewfinder lens is not adjusted. → Adjust the viewfinder lens (p. 31).
SteadyShot does not work.	• STEADYSHOT is set to OFF in the menu settings. → Set it to ON (p. 177).
The autofocusing function does not work.	• The setting is the manual focus. → Press FOCUS to set to the autofocus (p. 66). • Shooting conditions are not suitable for autofocus. → Adjust to focus manually (p. 66).
The picture does not appear in the viewfinder.	• The LCD panel is open. → Close the LCD panel.

Types of trouble and how to correct trouble

Symptom	Cause and/or Corrective Actions
A vertical band appears when you shoot a subject such as lights or a candle flame against a dark background.	• The contrast between the subject and background is too high. This is not a malfunction.
A vertical band appears when you shoot a very bright subject.	• This is not a malfunction.
Some tiny spots in white, red, blue or green appear on the screen.	• SLOW SHTR, Super NightShot* or Color Slow Shutter* is activated. This is not a malfunction.
An unknown picture appears on the screen.	• If 10 minutes elapse after you set the POWER switch to CAMERA or DEMO MODE is set to ON in the menu settings without a cassette and the "Memory Stick"* inserted, your camcorder automatically starts the demonstration. → Insert a cassette / a "Memory Stick"* or press the LCD screen. The demonstration stops. You can also set DEMO MODE to OFF in the menu settings (p. 183).
The picture is recorded in incorrect or unnatural colors.	• NIGHTSHOT is slid to ON. → Slide it to OFF (p. 34).
Picture appears too bright, and the subject does not appear on the screen.	• NIGHTSHOT is slid to ON in a bright place. → Slide it to OFF (p. 34). • The back light function is active. → Deactivate it (p. 33).
The click of the shutter does not sound.	• BEEP is set to OFF in the menu settings. → Set it to MELODY or NORMAL (p. 184).
Black bands appear when you record a TV screen or computer screen.	→ Set STEADYSHOT to OFF in the menu settings (p. 177).
An external flash (optional) does not work.	• The power of the external flash (optional) is off or the power source is not installed. → Turn on the external flash (optional) or install the power source. • 2 or more external flashes (optional) are attached. → Only 1 external flash (optional) can be attached.
Flickering or changes in color occurs.	• PORTRAIT or SPORTS of PROGRAM AE is on when recording in light from a discharge tube such as a fluorescent lamp, sodium lamp or mercury lamp. → Set PROGRAM AE to AUTO in the menu settings.

* DCR-TRV22 / TRV33 only

(continued on the following page)

During playback

Symptom	Cause and/or Corrective Actions
Playback is not possible.	• The tape has run out. ➔ Rewind the tape (p. 39).
There are horizontal lines on the picture or the playback picture is not clear or does not appear.	• The video head may be dirty. ➔ Clean the head using the cleaning cassette (optional) (p. 206).
No sound or only a low sound is heard when playing back the tape.	• The stereo tape is played back with HiFi SOUND set to 2 in the menu settings. ➔ Set HiFi SOUND to STEREO (p. 178). • Volume is turned to minimum. ➔ Turn up the volume (p. 39). • AUDIO MIX is set to the ST2 side in the menu settings. ➔ Adjust AUDIO MIX (p. 178).
The sound breaks off.	• The video head may be dirty. ➔ Clean the head using the cleaning cassette (optional) (p. 206).
Displaying the record date, date search does not work.	• The cassette has no Cassette Memory. ➔ Use a cassette with Cassette Memory (p. 77). • CM SEARCH is set to OFF in the menu settings. ➔ Set it to ON (p. 181). • The tape has a blank portion in the recorded portion (p. 78).
Title search does not work.	• The cassette has no Cassette Memory. ➔ Use a cassette with Cassette Memory (p. 76). • CM SEARCH is set to OFF in the menu settings. ➔ Set it to ON (p. 181). • There is no title in the tape. ➔ Superimpose the titles (p. 101). • The tape has a blank portion in the recorded portion (p. 76).
New sound added to the recorded tape is not heard.	• AUDIO MIX is set to the ST1 side in the menu settings. ➔ Adjust AUDIO MIX (p. 178).
The title is not displayed.	• TITLE DSPL is set to OFF in the menu settings. ➔ Set it to ON (p. 181).
Picture is distorted and PAL appears on the screen.	• The TV color system recorded on the tape is different from that of the TV.

During recording and playback

Symptom	Cause and/or Corrective Actions
The power does not turn on.	• The battery pack is not installed, or is dead or nearly dead. → Install a charged battery pack (p. 16, 17). • The AC Adaptor is not connected to a wall outlet. → Connect the AC Adaptor to a wall outlet (p. 8).
End search does not work.	• The cassette was ejected after recording when using a cassette without Cassette Memory (p. 37). • You have not recorded on the new cassette yet (p. 37).
End search does not work correctly.	• The tape has a blank portion in the beginning or middle (p. 37).
The battery pack is quickly discharged.	• The temperature of the environment is too low. • The battery pack is not fully charged. → Charge the battery pack fully again (p. 17). • The battery pack is completely dead, and cannot be recharged. → Replace with a new battery pack (p. 200).
The remaining battery time indicator does not indicate the correct time.	• You have used the battery pack in an extremely hot or cold environment for a long time. • The battery pack is completely dead, and cannot be recharged. → Replace with a new battery pack (p. 200). • The battery pack is not fully charged. → Install a fully charged battery pack (p. 16, 17). • A deviation has occurred in the remaining battery time. → Charge the battery pack fully again so that the indication on the remaining battery time indicator is correct (p. 201).
The power goes off although the remaining battery time indicator indicates that the battery pack has enough power to operate.	• A deviation has occurred in the remaining battery time. → Charge the battery pack fully again so that the indication on the remaining battery time indicator is correct (p. 201).
The cassette cannot be ejected from the compartment.	• The power source is disconnected. → Connect it firmly (p. 8, 17). • The battery pack is dead. → Use a charged battery pack (p. 16, 17).
The ⏏ and ⏏ indicators flash and no functions except for cassette ejection work.	• Moisture condensation has occurred. → Remove the cassette and leave your camcorder for at least 1 hour to acclimatize (p. 205).
The C-I-I indicator does not appear when using the cassette with Cassette Memory.	• The gold-plated connector of the tape is dirty or dusty. → Clean the gold-plated connector (p. 199).
The remaining tape indicator is not displayed.	• REMAIN is set to AUTO in the menu settings. → Set it to ON to always display the remaining tape indicator (p. 182).

(continued on the following page)

When operating using the "Memory Stick" (DCR-TRV22/TRV33 only)

Symptom	Cause and/or Corrective Actions
The "Memory Stick" does not function.	• The POWER switch is not set to MEMORY. → Set it to MEMORY (p. 11). • The "Memory Stick" is not inserted. → Insert the "Memory Stick" (p. 10, 109).
Recording does not function.	• The "Memory Stick" has already been recorded to its full capacity. → Delete unnecessary images and record again (p. 143). • The "Memory Stick" formatted incorrectly is inserted. → Format the "Memory Stick" using your camcorder or use another "Memory Stick" (p. 107, 180). • The write-protect tab on the "Memory Stick" is set to LOCK. → Release the lock (p. 106).
The image cannot be deleted.	• The image is protected. → Cancel image protection (p. 142). • The write-protect tab on the "Memory Stick" is set to LOCK. → Release the lock (p. 106). • You tried to delete more than 100 images in one session. → You can select up to 100 images on the INDEX screen in one session (p. 144).
You cannot format the "Memory Stick."	• The write-protect tab on the "Memory Stick" is set to LOCK. → Release the lock (p. 106).
Deleting all the images cannot be carried out.	• The write-protect tab on the "Memory Stick" is set to LOCK. → Release the lock (p. 106).
You cannot protect the image.	• The write-protect tab on the "Memory Stick" is set to LOCK. → Release the lock (p. 106). • The index screen does not appear. → Press INDEX to display the index screen, then protect the image (p. 142).

Types of trouble and how to correct trouble

Symptom	Cause and/or Corrective Actions
You cannot write a print mark on the still image.	• The write-protect tab on the “Memory Stick” is set to LOCK. ➔ Release the lock (p. 106). • The index screen does not appear. ➔ Press INDEX to display the index screen, then write a print mark (p. 147). • You are trying to write a print mark on a moving picture. ➔ Print marks cannot be written to a moving picture. • A print mark is written on 999 files. ➔ A print mark can only be written on up to 999 files.
You cannot resize the image. (DCR-TRV33 only)	• Images recorded using other camcorders may not be resized.
You cannot play back images in actual size.	• You may not be able to play back images in actual size when you try to play back images recorded by other equipment. This is not a malfunction.
You cannot play back image data.	• Your camcorder may not be able to play back some images processed with the computer or whose folder or file names have been changed with the computer. • If you record images with any other equipment, the images may not be played back normally on your camcorder.

(continued on the following page)

Others

Symptom	Cause and/or Corrective Actions
A title is not recorded.	• The cassette has no Cassette Memory. → Use the cassette with Cassette Memory (p. 101). • The Cassette Memory is full. → Erase unnecessary title (p. 102). • The cassette is set to prevent accidental erasure. → Slide the write-protect tab so that red portion is not visible (p. 198). • The tape has a blank portion in the recorded portion. → Superimpose the title to the recorded portion (p. 101).
A cassette label is not recorded.	• The cassette has no Cassette Memory. → Use the cassette with Cassette Memory (p. 104). • The Cassette Memory is full. → Erase unwanted data (p. 105). • The tape is set to prevent accidental erasure. → Slide the write-protect tab so that red portion is not visible (p. 198).
Digital program editing to the tape does not function.	• The input selector on the VCR is not set correctly. → Set the selector correctly, then check the connection between the VCR and your camcorder (p. 81, 92). • Your camcorder is connected to DV equipment of other than Sony using the i.LINK cable. → Set it to IR (p. 85). • Setting program on a blank portion of the tape is attempted. → Set the program again on a recorded portion (p. 90). • The synchronization of your camcorder and the VCR is not adjusted. → Adjust the synchronization of the VCR (p. 88). • The IR SETUP code is not correct. → Set the correct code (p. 87).
Digital program editing to the "Memory Stick" does not function. (DCR-TRV22/TRV33 only)	• Setting program on a blank portion of the tape is attempted. → Set the program again on a recorded portion (p. 130).
The Remote Commander supplied with your camcorder does not work.	• COMMANDER is set to OFF in the menu settings. → Set it to ON (p. 184). • Something is blocking the infrared rays. → Remove the obstacle. • The batteries are inserted in the battery holder with the + – polarities not matching the + – marks. → Insert the batteries with the correct polarity (p. 217). • The batteries are dead. → Insert new ones (p. 217).
The picture from a TV or VCR does not appear even when your camcorder is connected to the outputs on the TV or VCR.	• DISPLAY is set to V-OUT/LCD in the menu settings. → Set it to LCD (p. 184).

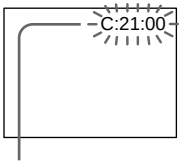
Types of trouble and how to correct trouble

Symptom	Cause and/or Corrective Actions
The melody or beep sounds for 5 seconds.	• Moisture condensation has occurred. → Remove the cassette and leave your camcorder for at least 1 hour to acclimatize (p. 205). • Some troubles have occurred in your camcorder. → Remove the cassette and insert it again, then operate your camcorder.
No function works though the power is on.	→ Disconnect the AC Adaptor from a wall outlet or remove the battery pack, then reconnect it in about 1 minute. Turn the power on. If the functions still do not work, press the RESET button using a sharp-pointed object. (If you press the RESET, all the settings including the date and time return to the default.) (p. 213)
When you set the POWER switch to VCR or OFF (CHG), if you move your camcorder, you may hear a clattering sound from inside your camcorder. (DCR-TRV33 only)	• This is because some functions use a linear mechanism. This is not a malfunction.
While charging the battery pack, no indicator appears.	• The battery pack is not properly installed. → Install it properly (p. 16).
You cannot charge the battery pack.	• The POWER switch is not set to OFF (CHG). → Set it to OFF (CHG) (p. 17).
The power runs out quickly, even though the remaining battery time indicator is full.	→ Charge the battery pack fully again (p. 17).
While charging the battery pack, the CHG (charge) lamp flashes.	• The battery pack is not properly installed. → Install it properly (p. 16). • Something is wrong with the battery pack. → Please contact your Sony dealer or local authorized Sony service facility.
The buttons do not appear on the touch panel.	• DSPL/BATT INFO is pressed. → Press the LCD screen lightly. → Press DSPL/BATT INFO on your camcorder or DISPLAY on the Remote Commander (p. 40).
The buttons on the LCD screen do not work.	→ Adjust the screen (CALIBRATION) (p. 207).
Image data cannot be transferred to your computer by the USB connection.	• The USB cable was connected before installation of the USB driver was complete. → Uninstall the incorrect USB driver and reinstall the USB driver (p. 153, 171). • USB STREAM is set to OFF in the menu settings. → Set it to ON (p. 183).
The cassette cannot be ejected even if the cassette lid is open.	• Moisture has started to condense in your camcorder (p. 205).
The cassette cannot be ejected.	→ Remove the battery pack, then install it again (p. 16).

Self-diagnosis display

Your camcorder has a self-diagnosis display function.
This function displays the current condition of your camcorder as a 5-digit code (a combination of a letter and figures) on the LCD screen or viewfinder. If a 5-digit code appears, check the following code chart. The last 2 digits (indicated by ☐☐) will differ depending on the state of your camcorder.

LCD screen or Viewfinder



Self-diagnosis display
- C:☐☐:☐☐
 You can service your camcorder yourself.
- E:☐☐:☐☐
 Contact your Sony dealer or local authorized Sony service facility.

5-digit display	Cause and/or Corrective Actions
C:04:☐☐	• You are using a battery pack that is not an "InfoLITHIUM" battery pack. ➔ Use an "InfoLITHIUM" battery pack (p. 17, 200).
C:21:☐☐	• Moisture condensation has occurred. ➔ Eject the cassette and leave your camcorder for at least 1 hour to acclimatize (p. 205).
C:22:☐☐	• The video heads are dirty. ➔ Clean the heads using the cleaning cassette (optional) (p. 206).
C:31:☐☐ C:32:☐☐	• A malfunction other than the above that you can service has occurred. ➔ Eject the cassette and insert it again, then operate your camcorder. Do not perform this operation if moisture starts to condense (p. 205). ➔ Disconnect the power cord of the AC Adaptor or remove the battery pack. After reconnecting the power source, operate your camcorder. ➔ Replace the cassette.
E:20:☐☐ E:61:☐☐ E:62:☐☐	• A malfunction that you cannot service has occurred. ➔ Contact your Sony dealer or local authorized Sony service facility and inform them of the 5-digit code. (e.g. E:61:10)

If you are unable to rectify the problem even if you try corrective actions a few times, contact your Sony dealer or local authorized Sony service facility.

Warning indicators

If indicators appear on the screen, check the following:
See the page in parentheses "()" for details.

101-0001 **Warning indicator as to file[2)]**
Slow flashing:
- The file is corrupted.
- The file is unreadable.
- You are trying to carry out MEMORY MIX on moving pictures (p. 120).

C:21:00 **Self-diagnosis display** (p. 194)

The battery pack is dead or nearly dead
Slow flashing:
- The battery pack is nearly dead. Depending on operational, environmental or battery conditions the indicator may flash, even if there are approximately 5 to 10 minutes remaining.

Moisture condensation has occurred[1)]
Fast flashing:
- Eject the cassette, set the POWER switch to OFF (CHG), and leave it for about 1 hour with the cassette lid open (p. 205).

Warning indicator as to cassette memory[1)]
Slow flashing:
- No cassette with cassette memory is inserted (p. 197).

Warning indicator as to the "Memory Stick"[2)]
Slow flashing:
- No "Memory Stick" is inserted.

Fast flashing:
- The image cannot be recorded on the "Memory Stick."[1)]

Warning indicator as to the "Memory Stick" formatting[1) 2)]
Fast flashing:
- The "Memory Stick" data is corrupted (p. 109).
- The "Memory Stick" is not formatted correctly (p. 180).

Warning indicator as to incompatible "Memory Stick"[1) 2)]
Slow flashing:
- An incompatible "Memory Stick" is inserted.

Warning indicator as to the tape
Slow flashing:
- The tape is near the end.
- No cassette is inserted.[1)]
- The write-protect tab of the cassette is effective (red) (p. 198).[1)]

Fast flashing:
- The tape has run out.[1)]

You need to eject the cassette[1)]
Slow flashing:
- The write-protect tab on the cassette is effective (red) (p. 198).

Fast flashing:
- Moisture condensation has occurred (p. 205).
- The tape has run out.
- The self-diagnosis display function is activated (p. 194).

The image is protected[1) 2)]
Slow flashing:
- The image is protected (p. 142).

Warning indicator as to the flash (optional)
Slow flashing:
- During charging

Fast flashing:
- The self-diagnosis display function is activated (p. 194).[1)]
- There is something wrong with the external flash (optional).

Warning indicator as to still image recording
Slow flashing:
- The still image cannot be recorded on the "Memory Stick" (p. 47).[2)]
- The still image cannot be recorded on the tape (p. 48).[3)]

[1)] You hear the melody or beep sound.
[2)] DCR-TRV22 / TRV33 only
[3)] DCR-TRV19 only

Warning messages

If messages appear on the screen, check the following. See the page in parentheses "()" for details.

• CLOCK SET	Set the date and time (p. 22).
• FOR "InfoLITHIUM" BATTERY ONLY	Use an "InfoLITHIUM" battery pack (p. 17).
• CLEANING CASSETTE	The video heads are dirty (p. 206). The ⊗ indicator and "CLEANING CASSETTE" message appear one after another on the screen.
• COPY INHIBIT	You tried to record a picture that has a copyright control signal (p. 197).[1]
• FULL	The Cassette Memory is full (p. 102, 104, 105).[1]
• 16BIT	AUDIO MODE is set to 16BIT.[1] You cannot dub new sound (p. 99, 182).
• REC MODE	REC MODE is set to LP.[1] The tape was recorded in different color system. You cannot dub new sound (p. 99, 182).
• TAPE	There is no recorded portion on the tape.[1] You cannot dub new sound (p. 99).
• "i.LINK" CABLE	i.LINK cable is connected.[1] You cannot dub new sound (p. 99).
• FULL[3]	The "Memory Stick" is full (p. 117).[1]
• [3]	The write-protect tab on the "Memory Stick" is set to LOCK (p. 106).[1]
• NO FILE[3]	No image is recorded or recognized on the "Memory Stick".[1]
• NO MEMORY STICK[3]	No "Memory Stick" is inserted.[1]
• AUDIO ERROR[3]	You are trying to record an image with sound that cannot be recorded by your camcorder on the "Memory Stick" (p. 128).[1]
• MEMORY STICK ERROR[3]	The "Memory Stick" data is corrupted (p. 109).[1]
• FORMAT ERROR[3]	The "Memory Stick" is not recognized (p. 109).[1] Check the format.
• PLAY ERROR[3]	The image is distorted and cannot be played back.[1] [2]
• REC ERROR[3]	Turn the power off once, then on again.[1]
• INCOMPATIBLE MEMORY STICK[3]	The "Memory Stick" inserted is not compatible with your camcorder.[1]
• READ-ONLY MEMORY STICK[3]	A read-only "Memory Stick" is inserted.[1]
• ⏏ TAPE END	The tape has reached the end of the tape.[1]
• NO TAPE	Insert a cassette.[1]
• DELETING[3]	You press PHOTO on your camcorder while deleting data in the "Memory Stick."[1]
• FORMATTING[3]	You press PHOTO on your camcorder while formatting the "Memory Stick."[1]
• NOW CHARGING	Charging an external flash (optional) does not work correctly.[1]
• FOLDER NO. FULL[3]	You have reached the maximum number of folders that can be created.[1]
• USB STREAMING ON GOING[3]	USB streaming is being performed.

[1] You hear the melody or beep sound.
[2] Reinsert the "Memory Stick" and play back.
[3] DCR-TRV22 / TRV33 only

Usable cassettes

Selecting cassette types

You can use the mini DV Mini DV cassette only.* You cannot use any other 8 mm 8, Hi8 Hi8, Digital8 8, VHS VHS, VHSC VHSC, S-VHS S-VHS, S-VHSC S-VHSC, Betamax Beta, ED Betamax ED Beta, DV DV or MICROMV MICROMV cassette.

* There are 2 types of mini DV cassettes: with Cassette Memory and without Cassette Memory.
Cassettes with Cassette Memory have CM (Cassette Memory) mark.
We recommend that you use cassettes with Cassette Memory.

IC memory is mounted on this type of cassette. Your camcorder can read and write data such as dates of recording or titles, etc. to this memory.
The functions using the Cassette Memory require successive signals recorded on the tape. If the tape has a blank portion at the beginning or between recorded portions, titles may not be displayed properly or the search functions may not work properly. Perform the following to prevent a blank portion from being made on the tape.
Press END SCH to go to the end of the recorded portion before you begin the next recording if you operate the following:
– You have ejected the cassette during recording.
– You have played back the tape.
– You have used edit search.

If there is a blank portion or discontinuous signal on the tape, re-record from the beginning to the end of the tape as described above.
The same result may occur when you record using a digital video camera recorder without Cassette Memory on the tape recorded by one with the Cassette Memory.

CM 4K mark on the cassette

The memory capacity of the tape marked with CM 4K is 4K bits. Your camcorder can accommodate up to 16K bits. 16K bits tape is marked with CM 16K.

Mini DV Digital Video Cassette This is the Mini DV mark.

CM Cassette Memory This is the Cassette Memory mark.

These are trademarks.

Copyright signal

When you play back

If the tape you play back on your camcorder contains copyright signals, you cannot copy it with another video camera connected to your camcorder.

When you record

You cannot record software on your camcorder that contains copyright control signals for copyright protection of software.

The COPY INHIBIT indicator appears on the screen, or on the TV screen if you try to record such software. Your camcorder does not record copyright control signals on the tape when it records.

Audio mode

12-bit mode: The original sound can be recorded in stereo 1, and the new sound in stereo 2 in 32 kHz. The balance between stereo 1 and stereo 2 can be adjusted by selecting AUDIO MIX in the menu settings during playback. Both sounds can be played back.

16-bit mode: A new sound cannot be recorded but the original sound can be recorded in high quality. Moreover, it can also play back sound recorded in 32 kHz, 44.1 kHz or 48 kHz. When playing back the tape recorded in the 16-bit mode, the 16BIT indicator appears on the screen.

When you play back a dual sound track tape

When you play back a dual sound track tape recorded in a stereo system, set HiFi SOUND in to a desired mode in the menu settings (p. 178).

Sound from speaker

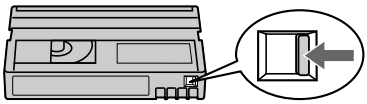
HiFi Sound Mode	Playing back the stereo tape	Playing back the dual sound track tape
STEREO	Stereo	Main sound and sub sound
1	L channel	Main sound
2	R channel	Sub sound

You cannot record dual sound programs on your camcorder.

Notes on the cassette

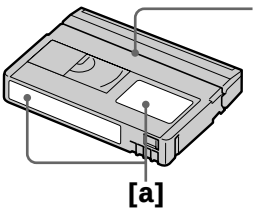
To prevent accidental erasure

Slide the write-protect tab on the cassette to expose the red mark.



When affixing a label on the cassette

Be sure to affix a label only on the locations as illustrated below **[a]** so as not to cause malfunction of your camcorder.



After using the cassette

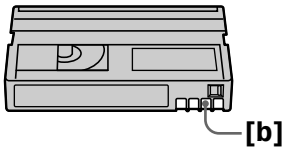
Rewind the tape to the beginning, put the cassette in its case, and store it in an upright position.

When the Cassette Memory function does not work

Reinsert a cassette. The gold-plated connector of mini DV cassettes may be dirty or dusty.

Cleaning gold-plated connector

If the gold-plated connector on the cassette is dirty or dusty, the remaining tape indicator sometimes does not appear correctly, and you may not be able to operate functions using Cassette Memory.
Clean up the gold-plated connector with a cotton-wool swab, about every 10 times ejection of a cassette. **[b]**



About the “InfoLITHIUM” battery pack

This unit is compatible with the “InfoLITHIUM” battery pack (M series). Your camcorder operates only with the “InfoLITHIUM” battery pack. “InfoLITHIUM” M series battery packs have the InfoLITHIUM M SERIES mark.

What is the “InfoLITHIUM” battery pack?

The “InfoLITHIUM” battery pack is a lithium-ion battery pack that has functions for communicating information related to operating conditions between your camcorder and an optional AC adaptor/charger.
The “InfoLITHIUM” battery pack calculates the power consumption according to the operating conditions of your camcorder, and displays the remaining battery time in minutes. With an AC adaptor/charger (optional), the remaining battery time and charging time appear.

Charging the battery pack

- Be sure to charge the battery pack before you start using your camcorder.
- We recommend charging the battery pack in an ambient temperature of between 10°C to 30°C (50°F to 86°F) until the CHG lamp goes out. If you charge the battery outside of this temperature range, you may not be able to efficiently charge the battery pack.
- After charging is complete, either disconnect the cable from the DC IN jack on your camcorder or remove the battery pack.

Effective use of the battery pack

- Battery pack performance decreases in 10°C (50°F) or below surroundings. So, the time that the battery pack can be used becomes shorter. We recommend the following to use the battery pack longer:
 – Put the battery pack in a pocket to warm it up, and insert it in your camcorder immediately before you start taking shots.
 – Use the large capacity battery pack (NP-FM50/FM70/QM71/QM71D/FM91/QM91/QM91D, optional).
- Frequently using the LCD screen or frequently operating playback, fast forward or rewind wears out the battery pack faster. We recommend using the large capacity battery pack (NP-FM50/FM70/QM71/QM71D/FM91/QM91/QM91D, optional).
- Be certain to set the POWER switch to OFF (CHG) when not taking shots or playing back on your camcorder. The battery pack is also consumed when your camcorder is during tape recording standby or playback pause.
- Have spare battery packs handy for 2 or 3 times the expected recording time, and make trial recordings before taking the actual recording.
- Do not expose the battery pack to water. The battery pack is not water resistant.

About the “InfoLITHIUM” battery pack

Remaining battery time indicator

- If the power goes off although the remaining battery time indicator indicates that the battery pack has enough power to operate, charge the battery pack fully again so that the indication on the remaining battery time indicator is correct. Note, however, that the correct battery indication sometimes will not be restored if it is used in high temperatures for a long time or left in a fully charged state, or the battery pack is frequently used. Regard the remaining battery time indication as the approximate shooting time.
- The mark indicating little remaining battery time sometimes flashes depending on the operating conditions or ambient temperature and environment even if the remaining battery time is about 5 to 10 minutes.

How to store the battery pack

- If the battery pack is not used for a long time, do the following procedure once per year to maintain proper function.
 1. Fully charge the battery pack.
 2. Discharge on your electronic equipment.
 3. Remove the battery pack from the equipment and store it in a dry, cool place.
- To use the battery pack up on your camcorder, leave your camcorder during tape recording standby until the power goes off without a cassette inserted.

Battery life

- The battery life is limited. Battery capacity drops little by little as you use it more and more, and as time passes. When the available battery time is shortened considerably, a probable cause is that the battery pack has reached the end of its life. Please buy a new battery pack.
- The battery life varies depending on how it is stored and operating conditions and environment for each battery pack.

“InfoLITHIUM” is a trademark of Sony Corporation.

About i.LINK

The DV Interface on this unit is an i.LINK-compliant DV Interface. This section describes the i.LINK standard and its features.

What is i.LINK?

i.LINK is a digital serial interface for handling digital video, digital audio and other data in 2 directions between equipment having the i.LINK, and for controlling other equipment.
i.LINK-compatible equipment can be connected by a single i.LINK cable. Possible applications are operations and data transactions with various digital AV equipment.
When 2 or more i.LINK-compatible equipment are connected to this unit in a daisy chain, operations and data transactions are possible with not only the equipment that this unit is connected to but also with other devices via the directly connected equipment.
Note, however, that the method of operation sometimes varies according to the characteristics and specifications of the equipment to be connected, and that operations and data transactions are sometimes not possible on some connected equipment.

Note

Normally, only 1 piece of equipment can be connected to this unit by the i.LINK cable. When connecting this unit to i.LINK-compatible equipment having 2 or more DV Interfaces, refer to the operating instructions of the equipment to be connected.

About the name "i.LINK"

i.LINK is a more familiar term for IEEE 1394 data transport bus proposed by Sony, and is a trademark approved by many corporations.
IEEE 1394 is an international standard standardized by the Institute of Electrical and Electronics Engineers.

i.LINK baud rate

i.LINK's maximum baud rate varies according to the equipment. Three maximum baud rates are defined:

S100 (approx. 100Mbps*)
S200 (approx. 200Mbps)
S400 (approx. 400Mbps)

The baud rate is listed under "Specifications" in the operating instructions of each equipment. It is also indicated near the i.LINK on some equipment.
The maximum baud rate of equipment on which it is not indicated such as this unit is "S100."
When units are connected to equipment having a different maximum baud rate, the baud rate sometimes differs from the indicated baud rate.

***What is Mbps?**

Mbps stands for megabits per second, or the amount of data that can be sent or received in 1 second. For example, a baud rate of 100Mbps means that 100 megabits of data can be sent in 1 second.

i.LINK functions on this unit

For details on how to dub when this unit is connected to other video equipment having DV Interface, see page 81 and 93.
This unit can also be connected to other i.LINK (DV Interface) compatible equipment made by Sony (e.g. VAIO series personal computer) other than video equipment.
Before connecting this unit to your computer, make sure that application software supported by this unit is already installed on your computer.
Some video equipment such as digital TV, DVD, MICRO MV may not be compatible with the DV Interface even if they have an i.LINK jack. Make sure that the equipment is compatible with the DV Interface before connecting.
For details on precautions when connecting this unit, also refer to the operating instructions for the equipment to be connected.

Required i.LINK cable

Use the Sony i.LINK 4-pin-to-4-pin cable (during DV dubbing).

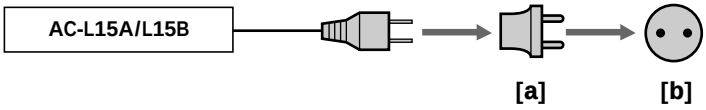
i.LINK and i are trademarks.

Using your camcorder abroad

Using your camcorder abroad

You can use your camcorder in any country or area with the AC Adaptor supplied with your camcorder within 100 V to 240 V AC, 50/60 Hz.

Use a commercially available AC plug adaptor **[a]**, if necessary, depending on the design of the wall outlet **[b]**.



Your camcorder is an NTSC system based camcorder. If you want to view the playback picture on a TV, it must be an NTSC system based TV with the AUDIO/VIDEO input jack.
The following shows TV color systems used overseas.

NTSC system
Bahama Islands, Bolivia, Canada, Central America, Chile, Colombia, Ecuador, Guyana, Jamaica, Japan, Korea, Mexico, Peru, Surinam, Taiwan, the Philippines, the U.S.A., Venezuela, etc.

PAL system
Australia, Austria, Belgium, China, Czech Republic, Denmark, Finland, Germany, Holland, Hong Kong, Hungary, Italy, Kuwait, Malaysia, New Zealand, Norway, Poland, Portugal, Singapore, Slovak Republic, Spain, Sweden, Switzerland, Thailand, United Kingdom, etc.

PAL-M system
Brazil

PAL-N system
Argentina, Paraguay, Uruguay

SECAM system
Bulgaria, France, Guiana, Iran, Iraq, Monaco, Russia, Ukraine, etc.

Simple setting of clock by time difference

You can easily set the clock to the local time by setting a time difference. Select WORLD TIME in the menu settings. See page 184 for more information.

Maintenance information and precautions

Moisture condensation

If your camcorder is brought directly from a cold place to a warm place, moisture may condense inside your camcorder, on the surface of the tape, or on the lens. In this condition, the tape may stick to the head drum and be damaged or your camcorder may not operate correctly. If there is moisture inside your camcorder, the beep sounds and the 💧 indicator flashes. When the ⏏ indicator flashes at the same time, the cassette is inserted in your camcorder. If moisture condenses on the lens, the indicator will not appear.

If moisture condensation has occurred

None of the functions except cassette ejection will work. Eject the cassette, turn off your camcorder, and leave it for about 1 hour with the cassette lid open. Your camcorder can be used again if the 💧 or ⏏ indicator does not appear when the power is turned on again.

If moisture starts to condense, your camcorder sometimes cannot detect condensation. If this happens, the cassette is sometimes not ejected for 10 seconds after the cassette lid is opened. This is not a malfunction. Do not close the cassette lid until the cassette is ejected.

Note on moisture condensation

Moisture may condense when you bring your camcorder from a cold place into a warm place (or vice versa) or when you use your camcorder in a hot place as follows:

– You bring your camcorder from a ski slope into a place warmed up by a heating device.
– You bring your camcorder from an air-conditioned car or room into a hot place outside.
– You use your camcorder after a squall or a shower.
– You use your camcorder in a high temperature and humidity place.

How to prevent moisture condensation

When you bring your camcorder from a cold place into a warm place, put your camcorder in a plastic bag and tightly seal it. Remove the bag when the air temperature inside the plastic bag has reached the surrounding temperature (after about 1 hour).

Maintenance information

Cleaning the video head

To ensure normal recording, clear pictures and sound, clean the video head. The video head may be dirty when:

– Mosaic-pattern noise appears on the playback picture.
– Playback pictures do not move.
– Playback pictures do not appear or the sound breaks off.
– The ⊗ indicator and "CLEANING CASSETTE" message appear one after another or the ⊗ indicator flashes on the screen during recording.

If the above problem, **[a]**, **[b]** or **[c]** occurs, clean the video heads for 10 seconds with the Sony DVM-12CLD cleaning cassette (optional). Check the picture and if the above problem persists, repeat cleaning.

[a]



[b]



[c]



If the video heads get dirtier, the entire screen becomes blue **[c]**.

Note on the video head

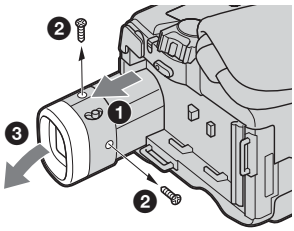
The video head suffers from wear after long use. If you cannot obtain a clear image even after using a cleaning cassette, it might be because the video head is worn. Please contact your Sony dealer or local authorized Sony service facility to have the video head replaced.

Cleaning the LCD screen

If fingerprints or dust make the LCD screen dirty, we recommend using a cleaning cloth (supplied) to clean the LCD screen. When you use the LCD Cleaning Kit (optional), do not apply the cleaning liquid directly to the LCD screen. Clean the LCD screen with cleaning paper moistened with the liquid.

Removing dust from inside the viewfinder

(1) Pull out the viewfinder in the direction of the arrow ❶.
Remove the 2 screws in the direction of the arrow ❷ with a screwdriver (optional).
Remove the eyecup in the direction of the arrow ❸.



(2) Remove dust from inside the eyecup and viewfinder with a commercially available blower.
(3) In the reverse way of **(1)**, attach the eyecup.

Caution

Do not remove any other screws. You may remove only the screw to remove the eyecup.

Notes

- Do not drop or bend the eyecup shaft.
- Be careful when handling the eyecup.

Charging the built-in rechargeable battery

Your camcorder has a built-in rechargeable battery so that the date, time and other settings are retained even when the POWER switch is set to OFF (CHG). The built-in rechargeable battery is always charged as long as you are using your camcorder. The battery, however, will get discharged gradually if you do not use your camcorder. It will be completely discharged in **about 4 months** if you do not use your camcorder at all. Even if the built-in rechargeable battery is not charged, it will not affect your camcorder operation. To retain the date and time, etc., charge the battery if the battery is discharged.

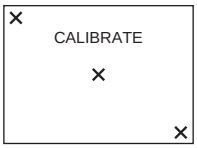
Charging the built-in rechargeable battery

- Connect your camcorder to the house current using the AC Adaptor supplied with your camcorder, and leave your camcorder with the POWER switch set to OFF (CHG) for more than 24 hours.
- Or install the fully charged rechargeable battery pack on your camcorder, and leave your camcorder with the POWER switch set to OFF (CHG) for more than 24 hours.

Adjusting the LCD screen (CALIBRATION)

The buttons on the touch panel may not work correctly. If this happens, follow the procedure below.

(1) Set the POWER switch to OFF (CHG).
(2) Eject the tape from your camcorder, then disconnect any connecting cable from your camcorder.
(3) Set the POWER switch to VCR while pressing DSPL/BATT INFO on your camcorder, then keep pressing DSPL/BATT INFO for about 5 seconds.
(4) Touch ✕ displayed on the screen using an object such as the corner of a "Memory Stick."
The position of ✕ changes.



Notes

- If you do not press the right spot, start from step 4 again.
- You cannot calibrate the LCD screen when the LCD screen is facing out.

Precautions

Camcorder operation

- Operate your camcorder on 7.2 V (battery pack) or 8.4 V (AC Adaptor).
- For DC or AC operation, use the accessories recommended in this operating instructions.
- If any solid object or liquid get inside the casing, unplug your camcorder and have it checked by a Sony dealer before operating it any further.
- Avoid rough handling or mechanical shock. Be particularly careful of the lens.
- Keep the POWER switch setting to OFF (CHG) when you are not using your camcorder.
- Do not wrap your camcorder with a towel, for example, and operate it. Doing so might cause heat to build up inside.
- Keep your camcorder away from strong magnetic fields or mechanical vibration.
- Do not press the LCD screen with a sharp objects.
- If your camcorder is used in a cold place, a residual image may appear on the LCD screen. This is not a malfunction.
- While using your camcorder, the back of the LCD screen may heat up. This is not a malfunction.

On handling the tape

- Do not insert anything into the small holes on the rear of the cassette. These holes are used to sense the type and thickness of the tape and if the recording tab is in or out.
- Do not open the tape protect cover or touch the tape.
- Avoid touching or damaging the terminals. To remove dust, clean the terminals with a soft cloth.

Camcorder care

- Eject the tape, and periodically turn on the power, operate the CAMERA and VCR sections and play back the tape for about 3 minutes when your camcorder is not to be used for a long time.
- Clean the lens with a soft brush to remove dust. If there are fingerprints on the lens, remove them with a soft cloth.
- Clean your camcorder body with a dry soft cloth, or a soft cloth lightly moistened with a mild detergent solution. Do not use any type of solvent which may damage the finish.
- Do not let sand get into your camcorder. When you use your camcorder on a sandy beach or in a dusty place, protect it from the sand or dust. Sand or dust may cause your camcorder to malfunction, and sometimes this malfunction cannot be repaired.

AC Adaptor

- Unplug the unit from a wall outlet when you are not using the unit for a long time. To disconnect the power cord, pull it out by the plug. Never pull the power cord itself.
- Do not operate the unit with a damaged cord or if the unit has been dropped or damaged.
- Do not bend the power cord forcibly, or place a heavy object on it. This will damage the cord and may cause fire or electrical shock.
- Prevent metallic objects from coming into contact with the metal parts of the connecting section. If this happens, a short may occur and the unit may be damaged.
- Always keep metal contacts clean.
- Do not disassemble the unit.
- Do not apply mechanical shock or drop the unit.
- While the unit is in use, particularly during charging, keep it away from AM receivers and video equipment. AM receivers and video equipment disturb AM reception and video operation.
- The unit becomes warm during use. This is not a malfunction.
- Do not place the unit in locations that are:
 – Extremely hot or cold
 – Dusty or dirty
 – Very humid
 – Vibrating

About care and storage of the lens

- Wipe the surface of the lens clean with a soft cloth in the following instance:
 – When there are fingerprints on the lens surface
 – In hot or humid locations
 – When the lens is used in environments such as the seaside
- Store the lens in a well-ventilated location subject to little dirt or dust.

To prevent mold from occurring, periodically perform the above.
We recommend turning on and operating your camcorder about once per month to keep your camcorder in an optimum state for a long time.

Rechargeable battery pack

- Use only the specified charger or video equipment with the charging function.
- To prevent an accident from a short circuit, do not allow metal objects to come into contact with the battery terminals.
- Keep the rechargeable battery pack away from fire.
- Never expose the rechargeable battery pack to temperatures above 60°C (140°F), such as in a car parked in the sun or under direct sunlight.
- Store the rechargeable battery pack in a cool, dry place.
- Do not expose the rechargeable battery pack to any mechanical shock.
- Do not disassemble nor modify the rechargeable battery pack.
- Install the rechargeable battery pack to the video equipment securely.
- Charging while some capacity remains does not affect the original battery capacity.

Note on dry batteries

To avoid possible damage from battery leakage or corrosion, observe the following:
– Be sure to insert the batteries with the + – polarities matched to the + – marks.
– Dry batteries are not rechargeable.
– Do not use a combination of new and old batteries.
– Do not use different types of batteries.
– Current flows from batteries when you are not using them for a long time.
– Do not use leaking batteries.

If batteries are leaking

- Wipe off the liquid in the battery compartment carefully before replacing the batteries.
- If you touch the liquid, wash it off with water.
- If the liquid get into your eyes, wash your eyes with a lot of water and then consult a doctor.

If any problem occurs, unplug your camcorder and contact your nearest Sony dealer.

Specifications

Video camera recorder

System

Video recording system
2 rotary heads
Helical scanning system
Audio recording system
Rotary heads, PCM system
Quantization: 12 bits (Fs 32 kHz, stereo 1, stereo 2), 16 bits (Fs 48 kHz, stereo)
Video signal
NTSC color, EIA standards
Usable cassette
Mini DV cassette with the Mini DV mark printed
Tape speed
SP: Approx. 18.81 mm/s
LP: Approx. 12.56 mm/s
Recording/playback time (using cassette DVM60)
SP: 1 hour
LP: 1.5 hours
Fastforward/rewind time (using cassette DVM60)
Approx. 2 min. and 40 seconds
Viewfinder
Electric viewfinder
DCR-TRV19: black and white
DCR-TRV22/TRV33: color
Image device
DCR-TRV19: 4.5 mm (1/4 type)
CCD (Charge Coupled Device)
Gross: Approx. 680 000 pixels
Effective (moving): Approx. 340 000 pixels
DCR-TRV22: 4.5 mm (1/4 type)
CCD (Charge Coupled Device)
Gross: Approx. 680 000 pixels
Effective (still): Approx. 340 000 pixels
Effective (moving): Approx. 340 000 pixels
DCR-TRV33: 3.8 mm (1/4.7 type)
CCD (Charge Coupled Device)
Gross: Approx. 1 070 000 pixels
Effective (still): Approx. 1 000 000 pixels
Effective (moving): Approx. 690 000 pixels

Lens
Carl Zeiss Vario-Sonnar
Combined power zoom lens
Filter diameter: 30 mm (1 3/16 in)
10× (Optical), 120× (Digital)
DCR-TRV19/TRV22:
F = 1.7 – 2.2
DCR-TRV33:
F = 1.8 – 2.0
Focal length
DCR-TRV19:
3.3 – 33 mm (5/32 – 1 5/16 in.)[1)]
42 – 420 mm (1 11/16 – 16 5/8 in.)[2)]
DCR-TRV22:
3.3 – 33 mm (5/32 – 1 5/16 in.)[1)]
42 – 420 mm (1 11/16 – 16 5/8 in.)[2)]
42 – 420 mm (1 11/16 – 16 5/8 in.)[3)]
DCR-TRV33:
3.7 – 37 mm (5/32 – 1 1/2 in.)[1)]
50 – 500 mm (2 – 19 3/4 in.)[2)]
42 – 420 mm (1 11/16 – 16 5/8 in.)[3)]

[1)] When converted to a 35 mm still camera
[2)] In CAMERA mode
[3)] In MEMORY mode

Color temperature
Auto, HOLD, INDOOR (3 200 K), OUTDOOR (5 800 K)
Minimum illumination
DCR-TRV19/TRV22:
5 lx (lux) (F1.7)
0 lx (lux) (in the NightShot mode)*
DCR-TRV33:
7 lx (lux) (F 1.8)
0 lx (lux) (in the NightShot mode)*

* Objects unable to be seen due to the dark can be shot with infrared lighting.

Input/Output connectors

S video input/output
4-pin mini DIN
Luminance signal: 1 Vp-p, 75 Ω (ohms), unbalanced
Chrominance signal: 0.286 Vp-p, 75 Ω (ohms), unbalanced
Audio/Video input (DCR-TRV22/TRV33 only)/output
AV MINI JACK, 1 Vp-p, 75 Ω (ohms), unbalanced
327 mV, (at output impedance more than 47 kΩ (kilohms))
Output impedance with less than 2.2 kΩ (kilohms)/Stereo minijack (ø 3.5 mm)
Input impedance more than 47 kΩ (kilohms)
DV input/output
4-pin connector
Headphone jack
Stereo minijack (ø 3.5 mm)
LANC jack
Stereo mini-minijack (ø 2.5 mm)
USB jack
mini-B
MIC jack
Minijack, 0.388 mV low impedance with 2.5 to 3.0 V DC, output impedance 6.8 kΩ (kilohms) (ø 3.5 mm)
Stereo type

LCD screen

Picture
6.2 cm (2.5 type)
50.3 × 37.4 mm (2 × 1 1/2 in.)
Total dot number
123 200 (560 × 220)

General

Power requirements
7.2 V (battery pack)
8.4 V (AC Adaptor)
Average power consumption (when using the battery pack)
DCR-TRV19/TRV22:
3.3 W[1)]
2.5 W[2)]
DCR-TRV33:
4.1 W[1)]
3.3 W[2)]
[1)] During camera recording using LCD
[2)] Viewfinder
Operating temperature
0°C to 40°C (32°F to 104°F)
Storage temperature
–20°C to + 60°C
(–4°F to + 140°F)
Dimensions (approx.)
71 × 90 × 112 mm
(2 7/8 × 3 5/8 × 4 1/2 in.) (w/h/d)
Mass (approx.)
Main unit only
DCR-TRV19:
520 g (1 lb 2 oz)
DCR-TRV22:
530 g (1 lb 2 oz)
DCR-TRV33:
540 g (1 lb 2 oz)
Including the rechargeable battery pack NP-FM30, cassette DVM60 and lens cap
DCR-TRV19:
610 g (1 lb 5 oz)
DCR-TRV22:
620 g (1 lb 5 oz)
DCR-TRV33:
630 g (1 lb 5 oz)

Supplied accessories
See page 15.

AC Adaptor AC-L15A/L15B

Power requirements
100 – 240 V AC, 50/60 Hz
Current consumption
0.35 – 0.18 A
Power consumption
18 W
Output voltage
DC OUT: 8.4 V, 1.5 A
Operating temperature
0°C to 40°C (32°F to 104°F)
Storage temperature
–20°C to + 60°C
(–4°F to + 140°F)
Dimensions (approx.)
56 × 31 × 100 mm
(2 1/4 × 1 1/4 × 4 in.) (w/h/d)
excluding projecting parts
Mass (approx.)
190 g (6.7 oz)
excluding power cord

Rechargeable battery pack NP-FM30

Maximum output voltage
DC 8.4 V
Output voltage
DC 7.2 V
Capacity
5.0 Wh (700 mAh)
Dimensions (approx.)
38.2 × 20.5 × 55.6 mm
(1 9/16 × 13/16 × 2 1/4 in.)
(w/h/d)
Mass (approx.)
65 g (2.3 oz)
Operating temperature
0°C to 40°C (32°F to 104°F)
Type
Lithium ion

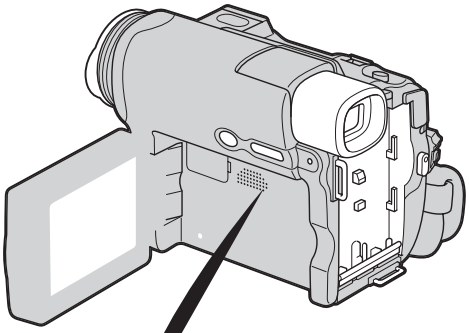
"Memory Stick" (DCR-TRV22/TRV33 only)

Memory
Flash memory
8MB: MSA-8A
Operating voltage
2.7 – 3.6 V
Power consumption
Approx. 45 mA during operation mode
Approx. 130 µA during tape recording standby
Dimensions (approx.)
50 × 2.8 × 21.5 mm
(2 × 1/8 × 7/8 in.) (w/h/d)
Mass (approx.)
4 g (0.14 oz)

Design and specifications are subject to change without notice.

Identifying parts and controls

Camcorder



1 **Lens cap** (p. 25)

2 **LCD/Touch panel screen** (p. 23, 28, 29)

3 **RESET button** (p. 193)
If you press RESET, [illegible] settings including the date [illegible] return to the default.

4 **BACK LIGHT b[illegible]**

5 **Speaker**

6 **DSPL/BATT INFO button** (p. 20, 40)

7 **CHG (charge) lamp** (p. 17)

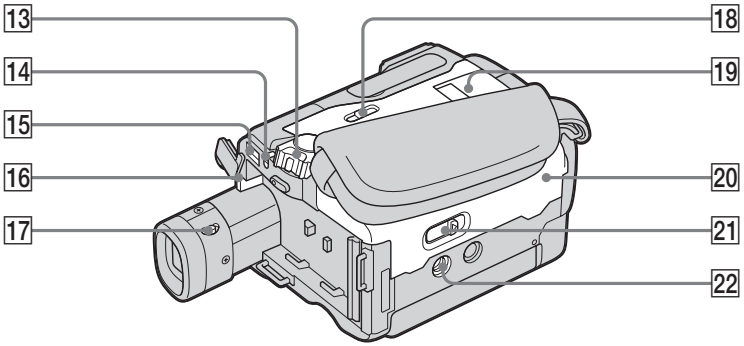
8 **Eyecup** (p. 206)

9 **Viewfinder** (p. 31)

10 **START/STOP button** (p. 9, 25, 125)

11 **Battery pack mounting surface** (p. 16)

12 **Hooks for shoulder strap**



13 **POWER switch** (p. 9, 11, 17)

14 **LOCK switch** (DCR-TRV22/TRV33 only, p. 11)

15 **DC IN jack** (p. 8, 10)

16 **BATT release button** (p. 16)

17 **Viewfinder lens adjustment lever** (p. 31)

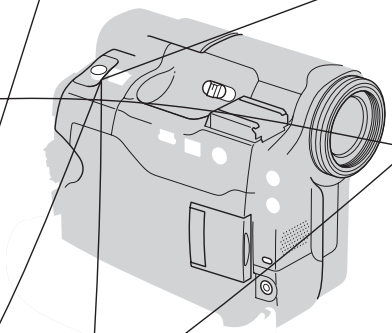
18 **MEMORY EJECT knob** (DCR-TRV22/TRV33 only, p. 10, 109)

19 **"Memory Stick" slot** (DCR-TRV22/TRV33 only, p. 10, 109)

20 **Cassette lid** (p. 8)

21 **OPEN/⏏EJECT lever** (p. 8)

22 **Tripod receptacle**
Make sure that the length of the tripod screw is less than 5.5 mm (7/32 inch). Otherwise, you cannot attach the tripod securely, and the screw may damage your camcorder.



30 **PHOTO button** (p. 11, 46, 114)

31 **Power zoom lever** (p. 32, 74, 140)

32 **(USB) jack** (p. 148)

33 **DV Interface** (p. 81, 93, 149)
The DV Interface is i.LINK compatible.

34 **AUDIO/VIDEO jack (yellow)** (DCR-TRV22/ TRV33 only, p. 44, 81, 93, 173)
AUDIO/VIDEO OUT jack (yellow) (DCR-TRV19 only, p. 44, 81)

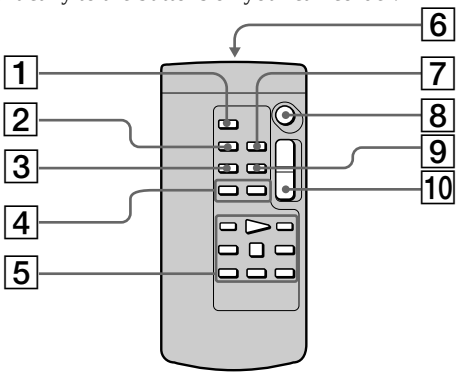
35 **Grip belt** (p. 8)

36 **NIGHTSHOT switch** (p. 34)

37 **(headphones) jack (green)**
When you use headphones, the speaker on your camcorder is silent.

Remote Commander

The buttons that have the same name on the Remote Commander as on your camcorder function identically to the buttons on your camcorder.



1 **PHOTO button** (p. 11, 46, 114)

2 **DISPLAY button** (p. 40)

3 **SEARCH MODE button** (p. 76, 77, 78, 79, 80)

4 **I◄◄ / ►►I buttons** (p. 76, 77, 78, 79, 80)

5 **Video control buttons** (p. 39, 42)

6 **Transmitter**
Point toward the remote sensor to control your camcorder after turning on your camcorder.

7 **ZERO SET MEMORY button** (p. 75)

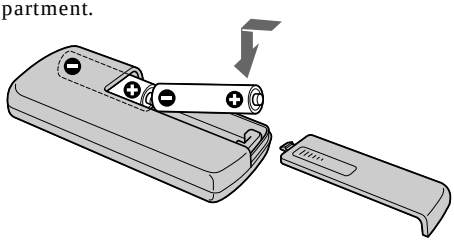
8 **START/STOP button** (p. 9, 25)

9 **DATA CODE button** (p. 40)

10 **Power zoom button** (p. 32)

To prepare the Remote Commander

Insert 2 size AA (R6) batteries by matching the + and – on the batteries to the + and – in the battery compartment.

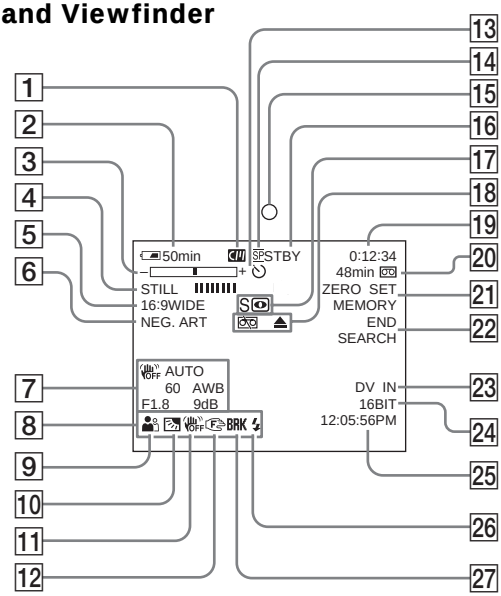


Notes on the Remote Commander

- Point the remote sensor away from strong light sources such as direct sunlight or overhead lighting. Otherwise, the Remote Commander may not function properly.
- Your camcorder works in the Commander mode VTR 2. Commander modes 1, 2 and 3 are used to distinguish your camcorder from other Sony VCRs to avoid erroneous remote control operation. If you use another Sony VCR in the Commander mode VTR 2, we recommend changing the Commander mode or covering the sensor of the VCR with black paper.

Operation indicators

LCD screen and Viewfinder



1 **Cassette Memory** (p. 27)
2 **Remaining battery time** (p. 27)
3 **Zoom** (p. 32)**/Exposure** (p. 64)**/ Data file name*** (p. 135)
4 **Digital effect*** (p. 59, 73)**/MEMORY MIX*** (p. 120)**/Fader** (p. 55)
5 **16:9WIDE** (p. 53)
6 **Picture effect** (p. 58, 72)
7 **Data code** (p. 40)
8 **Volume** (p. 39)**/Date** (p. 27)
9 **PROGRAM AE** (p. 62)
10 **Back light** (p. 33)
11 **SteadyShot off** (p. 177)
12 **Manual focus** (p. 66)
13 **Self-timer** (p. 50, 127)
14 **Recording mode** (p. 182)
15 **Camera recording lamp***** (p. 48)
16 **STBY/REC** (p. 25)**/Video control mode** (p. 39)**/Image size**** (p. 111)**/Image quality*** (p. 110)
17 **NIGHTSHOT** (p. 34)**/SUPER NIGHTSHOT*** (p. 34)**/COLOR SLOW SHUTTER*** (p. 35)
18 **Warning** (p. 195)
19 **Time code** (p. 27)**/Tape counter** (p. 27)**/ Self-diagnosis** (p. 194)**/Photo recording** (p. 114)**/Image number*** (p. 135) **/Playback folder*** (p. 138) **/Tape photo***** (p. 48)
20 **Remaining tape** (p. 27)**/Memory playback*** (p. 135)
21 **ZERO SET MEMORY** (p. 75)**/Interval Recording** (p. 68)**/Interval Photo Recording** (p. 124)**/Frame recording** (p. 69)
22 **END SEARCH** (p. 37)
23 **A/V → DV*** (p. 173)**/DV IN***** (p. 94)
24 **Audio mode** (p. 182)**/Recording folder*** (p. 134)
25 **Time** (p. 27)
26 **Flash** (p. 176)
This indicator appears only when the flash (optional) is in use.
27 **Continuous photo recording**** (p. 116)

* DCR-TRV22 / TRV33 only
** DCR-TRV33 only
*** DCR-TRV19 only

Index

A, B

AC Adaptor 17, 21
Adjusting the viewfinder 31
Audio dubbing 97
AUDIO MIX 178
AUDIO MODE 182
AUTO SHTR 176
A/V connecting cable 44, 81, 93
BACK LIGHT 33
Battery Info 20
Battery pack 16
BEEP 184
BOUNCE 55

C, D

C. CHROM 120
CALIBRATION 207
Cassette Memory 13, 197
Charging battery pack 17
Charging built-in rechargeable battery 207
CLEANING CASSETTE 206
Clock set 22
Color Slow Shutter 35
Continuous photo recording 116
Data code 40
Date search 77
DEMO MODE 183
Digital effect 59, 73
Digital program editing 84, 130
DISPLAY 184
DOT 55
Dual sound track tape 198

E

Edit search 38
End search 37
EXP BRKTG 116
Exposure 64

F, G, H

Fader 55
FLASH MOTION 59
Flexible Spot Meter 65
Format 107, 180
Frame recording 69
Full charge 18
Grip belt 8
🎧 (headphone) jack 216
Heads 206
HiFi SOUND 178

I, J, K, L

i.LINK 202
i.LINK cable 81, 93
Image protection 142
Image quality 110
Image size 111, 112
Index screen 136
"InfoLITHIUM" battery pack 16, 200
Infrared rays emitter 34, 86
Insert editing 95
Intelligent accessory shoe 98, 215
Interval Recording 68
Interval Photo Recording 124
JPEG 106
Labeling a cassette 104
LANC jack 216
LUMINANCE KEY 59

M, N

M. CHROM 120
M. LUMI 120
M. OVERLAP 120
Main sound 198
Manual focus 66
MEMORY MIX 120
Memory PB ZOOM 140
Memory photo recording 114
"Memory Stick" 106
"Memory Stick" capacity 113
Menu settings 175
Mirror mode 29
Moisture condensation 205
MONOTONE 55
MOSC. FADER 55
MPEG 106
NIGHTSHOT 34
NORM. FADER 55
NTSC system 204

O, P, Q

OLD MOVIE 59
Operation indicators 24
OVERLAP 55
PB FOLDR 139
Picture effect 58, 72
Picture search 42
Playback time 20
Print mark 147
PROGRAM AE 62

R

REC FOLDER 134
Rec Review 38
Recording time 19
Remaining battery time indicator 27
Remaining tape indicator 27
Remote Commander 217
Remote sensor 215
RESET 193, 213
Resize 146

S

S VIDEO ID-2 jack 54
Self-diagnosis display 194
Self-timer recording 50, 127
Signal convert function 173
Skip scan 42
Slide show 141
SLOW SHTR 59
SPOT FOCUS 67
STEADYSHOT 177
Stereo tape 198
STILL 59
Sub sound 198
Super NightShot 34

T, U, V

Tape counter 27
Tape PB ZOOM 74
Telephoto 32
Time code 27
Title 101
Title search 76
Touch panel 23
TRAIL 59
Transition 26
TV color systems 204
USB jack 148
USB Streaming 161

W, X, Y, Z

Warning indicators 195
Warning messages 196
White balance 52
Wide-angle 32
Wide mode 53
WIPE 55
Write-protect tab 198
Zero set memory 75
Zoom 32

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